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# A VERTEBRATE FAUNA
# OF
# SCOTLAND

BY

J. A. HARVIE-BROWN, F.R.S.E., F.Z.S.
MEMBER OF THE BRITISH ORNITHOLOGISTS' UNION, ETC.
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## TAY BASIN AND STRATHMORE

BY

J. A. HARVIE-BROWN

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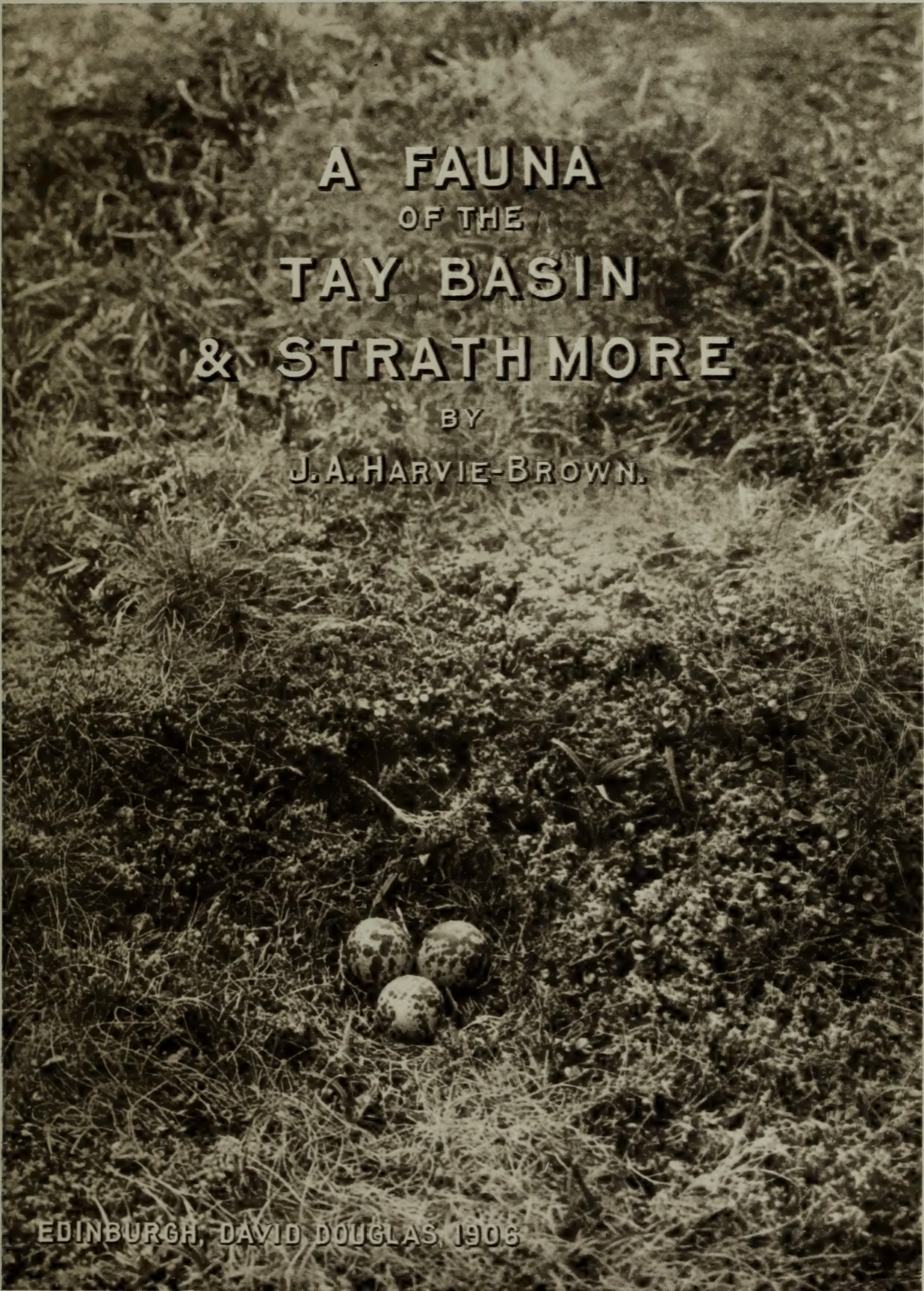

# A FAUNA
OF THE
# TAY BASIN & STRATHMORE

BY

J. A. HARVIE-BROWN.

EDINBURGH, DAVID DOUGLAS, 1906

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# PREFACE

All who have brought together and arranged large masses of "information" have had much trouble in sifting the wheat from the chaff, often entailing infinite labour to reach the truth about *rare* occurrences, etc.

All assertions, however positive, of exceptionally rare species which are unsupported by evidence cannot be scientifically accepted by naturalists. The latter cannot (ought not to be expected to) do violence to their own experiences and knowledge of geographical distribution at home and abroad; or unquestioningly accept unproved statements or utterly unsupported records of the breeding in this country, for instance, of such species as the Fire-crested Regulus, the Jack Snipe, Fieldfare, Redwing, Purple Sandpiper, etc.

Yet some people seem to consider it is enough for all purposes to say, "I saw it," and "Therefore what I saw must be what I saw it to be"; but they have yet to satisfy others who are students of distribution that they did not see some quite different thing, or some other thing that they had never seen before. Even ornithologists, for instance, of the longest and widest experience are often misled into similar side-ways; but their experience tells *them* not to be in haste to record without at least a saving clause, such as, "This is given not as a *real record*, but only for what it is worth."

I hope in our previous efforts the late Mr. T. E. Buckley and I have impressed the fact that we have always been desirous of reaching, so to speak, "bed-rock" in our investigations, though we may not at all times have succeeded. But to reach the "bed-rock of truth" is not child's play, as most men know who have really tried; and *they* know also what immense waste of energy there is in shovelling away the top-dressings and accumulations of less adhesive matter which cover it up.

In this, our series, we have looked upon it as our business to condense the past chronology and notice what is most worthy of repetition and accentuation—what was *true* when it was written, and which is either true still, or has been altered or modified by time. We have also endeavoured to indicate where previous error may be noted and avoided in future, and, as present chroniclers, where we have had reasonable doubts, by the use of square brackets.

Many changes have taken place; and we have tried to show something of the progress of such changes, and their causes. We can go back and trace finger-posts throughout our chronology in the writings of those preceding us. In this way Col. Drummond Hay often speaks of the causes of disappearance of species; for instance the reclamation of land, drainage of the lower moorlands and slopes, filling up of "carse-ditches," silting up of tidal flats, changes in the course of even the parent stream of the Tay, etc. And we also find alterations in forestry—in planting of great areas of mountain-slopes and heather-ground on the one hand, and on the other, the destruction to older forest-growth by wind or fire, or the felling of eighty-year-old timber tracts by man, besides many results of land-improvements in the course of time. By these changes the decrease of many species and the increase of others almost of a certainty result. The food-supplies of our game-pullets in some places almost or completely disappear; and the destruction of certain seeds and weeds, which were the favourite food of some of our smaller birds, such as the Goldfinch and Rose Linnet, has left its mark in many localities. But in these same or similarly treated areas, just as some species decrease or disappear, other species take possession and thrive and multiply, such as the Greenfinch and the summer migratory Warblers.

Many instances of this, we believe, will become apparent under the list of species treated of.

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In treating of the faunal area of TAY, I desire in the first instance to acknowledge my indebtedness to the Perthshire Society of Natural Science. It ought never to be forgotten—and I trust the fact will not be lost sight of, but gratefully remembered, at least by Scottish naturalists—that from the earliest day of its inauguration and subsequent establishment, after passing through a somewhat tempestuous rivalry with an older and decadent body, and manfully fighting its way through all these storms, the Perthshire Society of Natural Science "has set an example to all local societies, in adhering to its sphere of first usefulness—the elucidation of the Fauna and Flora, Geology and Topography, of the area to which its labours have been devoted, and to the practical education of the rising generation."[1]

Personally, I may be permitted to express my heartfelt gratitude to all members whom I have asked assistance from, for the ready and able help accorded to me in the preparation of this volume, which, with the kind permission also granted, I dedicate to the Society.

Intimately connected with the great success of the Society are the names of those who took first action, as well as of those who have continued the policy and aims to the present time.

I have to thank Mr. Coates for his interesting account of the Society which is given further on, as also for the loan of the photographic portraits of Sir Thomas Moncreiffe and Dr. F. Buchanan White.

My thanks are due to other naturalists also, outside the area, who have given ungrudging help. Amongst these latter I wish to mention my friend Mr. Wm. Evans, of Edinburgh; Mr. James Davidson, now of Edinburgh, formerly District Judge in India, and author of many papers upon the ornithology and entomology of that country; and also my old friend, Col. H. W. Feilden, who has sent me notes of great interest regarding the former status of certain species in the south-eastern portion of our area, with which his earliest recollections are associated, under the able tuition and encouragement of his father, Sir

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[1] Col. Drummond Hay informed me, and I have also verified the fact for myself, that the values of the records of specimens in the Montrose Museum are almost worthless, owing to the utter neglect of authentication and absence of labels to the specimens, as well as the loss of the "Donation Registers." That institution should take a leaf out of the Perth Society's book, and be remodelled on its entire constitution.

William Feilden, Bart., and that of James Keddie,[1] his father's gamekeeper.

At that time the Feildens were resident at Rankeillour in Fife, and had the shootings of Cambo and Rankeillour.[2]

Mention of the late Mr. Robert Walker is frequently made in the text, and an appreciative memoir will be found in the *Scottish Naturalist*, along with a list of his natural history papers (*loc. cit.*, 1881-2, p. 147). He died 5th February 1881, aged fifty-six years.

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[1] Col. Feilden supplies the note here given: "James Keddie was born at St. Andrews, 20th December 1823. He was employed as under-keeper by my father at Cambo, and went with him in the same capacity to Gray House, close to Invergowrie, in 1849." Keddie then went to Edinburgh in later years, and worked for Sanderson, bird-stuffer, etc., where he remained, and I knew him well between the years 1860 and until the time of his death.

[2] The Lower Rankeillour estate belonged originally to the forbears of Sir Robert Sibbald, Bart., the historian of Fife. His father was Mr. David Sibbald, third brother to Sir James Sibbald, Bart., of Rankeillour, Keeper of the Great Seal. The above dates back to about 1660. Sir Robert was born 15th April 1641. The Upper Rankeillour estate is of more modern date. The house was built by Lord Hopetoun, whose monument is on the Mount Hill.

Much other matter of interest can be gathered from the MS. which is preserved in the Advocates' Library in Edinburgh. I have a MS. copy, from which the above is taken, and the following also.

After tracing out his own history up to the point of his returning from abroad to his native country, he says as follows: Under the encouragement of Doctor Andrew Balfour, "I came by conversation with him to know the best writers on yt subject (*i.e.* 'naturall history'), and I had, from my settlement here, a designe to informe myself of the subject of the naturall history of this country . . . and I began to be curious in searching after ym and collecting ym, which I continued to do ever since." Much other interesting account is given in this MS. of his further career, but I have no room to enlarge upon it, except in the most compressed manner. He married, on the 26th April 1677, Miss Anna Lowes, of Merchiston, and he had one living daughter who was named Katerin. He became physician to the Earl of Perth, and through him Geographer to King Charles II. for Scotland, and thus came to publish his *Natural History of the Kingdom of Scotland* and *The Geographical Description of the Kingdome.* Further information is given of the publication of *Scotia Illustrata*, etc., of which he gave away some seventy copies in presents—including one to King Charles II. and another to His Royal Highness the Duke of York, to both of whom it was dedicated. Finally, he details the many honours which in later life were conferred upon him, and he relates his second marriage with account of the issue thereof.

I am specially indebted to Mr. John Milne, Auchenblae, for his full and useful notes on the birds of his district within a radius of some ten miles, and his correspondence continued since the date of March 20, 1895.[1]

I have also to thank a number of correspondents for kindly furnishing me with local lists and notes. Her Grace the Duchess of Bedford (list of birds observed at Meikleour, etc.); Dr. F. T. Dewar (an excellent list from the Arbroath district); Rev. Wm. M'Connochie, the Manse, Guthrie (for a list and notes of the birds of his parish); Mr. Charles MacIntosh (for daily observations made at my request in excursions through his native glen in 1905).[2]

My friend Mr. J. G. Millais most kindly drew up his notes upon the dispersal and distribution of the species he had met with whilst he resided at Murthly Castle, and "punted" after wild-fowl on the tidal Tay and coast-line, and he placed them at my disposal for the purposes of this volume. For these I desire to offer him my best thanks.

To Mr. Robert Godfrey I am obliged for notes made on my behalf at several localities within the area.[3]

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[1] See further on under Descriptive Chapters, p. lxv. I deeply regret to have to announce the somewhat sudden death of Mr. John Milne at his house, Auchenblae, upon the 6th of August 1906. I received the sad news from his sister by the same post as I received proof of this Preface from the printers.

[2] Mr. Charles MacIntosh, ex-post-runner, Inver, who is well acquainted with the ornithology of Strathbraan and the district around Dunkeld.

[3] Mr. R. Godfrey stayed three weeks at Dunan and Bridge of Ericht, and his friend Mr. Aird and he explored the Rannoch district from the islands of Loch Luydan and the Moor of Rannoch to Kinloch Rannoch. I myself resided at the Barracks, shooting and fishing on the Moor of Rannoch and the Black Wood in the autumn of 1874. At that time the shooting with the Barracks were let to the late Lord Mackenzie, whose guest I was. Mr. Godfrey sends me also his occasional notes from other districts—Head of Loch Earn, etc., east of Fife, etc.

Mr. Duncan Dewar, now of Killin, I have known as a good observer of native birds and an indefatigable collector for some twenty-five years.

To Mr. William Berry I am indeed grateful for much assistance, both as regards natural history notes and the topography of the Tents Muir, and for obtaining for me the portraits of John Fowlis (who prepared the ground and introduced Grouse to these hitherto grouseless muirs) and Duffus of Pickletillum, the well-known pigeon-shot of Fife. Also, my thanks are due to him and to Mr. George Burn-Murdoch for the admirable photogravure illustration of a portion of the grouse-ground, etc.

My obligations are also due to Professor Newton, of Cambridge, for assistance under several species, and for the permission to reproduce the likeness of L. Lloyd, Esq., of Capercaillie fame, from a photograph given to him by Mr. Lloyd himself shortly before that gentleman's death.

As through all the past volumes of the series, I have to thank my friend Mr. William Norrie for his careful and artistic photography, as well as his always sympathetic help and companionship.

I have to thank also Mr. C. Kearton for the negatives from which the illustrated title-page and a vignette in the text are taken—the one of the eggs of the Dotterel, and the other of the bird upon the nest.

To Mr. A. M. Rodger, curator of the Perth Museum, I am under much obligation for his willing assistance at all times and the trouble he has taken in many ways; and for the photographs from which the illustrations are reproduced of the Loch Ordie Osprey's nest and the Museum Buildings in Tay Street.

The old *Statistical Account* is unusually meagre in records. I am indebted to it, however, for the Gaelic names of species, so far as given, which are on the authority of the Rev. Patrick Stewart, of Luss, whose abilities, both as a naturalist and an accurate Gaelic scholar, have always been recognised.

An examination of the volume of the *New Statistical Account* for Forfar and Kincardine shires (not for the first time) shows rather fuller notices of the natural history of these counties than are given in the old *Statistical Account.* The principal lists are from the pens of the following gentlemen :—

The Rev. Thomas Easton, on the authority of John Kinloch, Esq. of Kilry, Kirriemuir, Forfar (p. 166). He refers to a collection at that time lodged in the Museum at St. Andrews, formed by him up to date of 1833. This is quite a good list; but the subsequent history of the items since placement at St. Andrews seems difficult of access.

The Rev. James Brewster, " whose practical knowledge may be compared with that of the celebrated Don in Botany," on the authority of Mr. Thomas Mollison.

The ornithological notes by Don are mostly quoted from the *Agricultural Survey* of the county, by Headrick, on Don's authority.[1]

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[1] Should any one desire to ascertain the valuations of the abilities of the innumerable reverend writers of the old *Statistical Account,* they cannot do better than consult Scott's *Fasti Ecclesiæ Scoticanæ,* usually to be found in the larger libraries.

The Rev. David Lyall, who compiled a very full, and in some respects elaborate list, but from internal evidence, not of much value for my purposes.

In Kincardineshire, lists appear for Bervie of some degree of excellence, but the best lists given are for Strachan and Banchory Ternan, by the late Dr. Adams, portions of which are distinctly within the area of DEE, and except in a matter of side-lights not available for our present area. See *The Fauna of Dee*, by Mr. George Sim.

I have under several species quoted Mr. George Bruce's[1] volume on *Birds in and about St. Andrews*, exercising, however, my own judgment with regard to his accuracy, as the book is of unequal merit for the purposes of this fauna.

I am indebted to the Marquess of Tullibardine for extended lists and summaries of the returns of Vermin killed on the Atholl estates. There is other interesting matter, which, however, I am obliged to place in an Appendix, as the information did not reach me until too late for admission to the text of the volume.

To many others who have—with invariable courtesy and intelligent interest in the progress of the work, both in the past and during the later stages — given me their help, and answered my inquiries or assisted in other ways, I am grateful. And I need scarcely add I will be also further obliged if they and all interested in the subject will keep me acquainted with any future developments which may come under their observation.

---

[1] Mr. George Bruce, author of "*Destiny*," "*Reminiscences of St. Andrews Bay*"—his best book—and "*Birds in and about St. Andrews.*" Mr. George Bruce was a well-known and prominent citizen of St. Andrews, and a local genius. He was poet, dramatist, actor, and bandmaster. He was also one of the original members of the Royal and Ancient Golfers and a medal-winner. He died July 1844, at the good old age of eighty years.

J. A. HARVIE-BROWN.

*September* 1906.

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(*Reproduced from the Ordnance Survey Map, with the sanction of the Controller of H.M. Stationery Office.*)

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# A SHORT REVISION OF THE PAST VOLUMES OF THIS SERIES.

I DESIRE to say a few words here with regard to the whole of this series, of which this is the tenth volume.

In the earlier volumes, Buckley and I did not lay so much emphasis upon what at the commencement we could only look on as an experimental and somewhat new departure—viz. the division of our whole area of Scotland into sub-areas and natural divisions. Nor could we with any sense of security speak freely regarding our views about migration, dispersal, and distribution, because at that time these matters were—as indeed they still are in great degree—dependent upon further developments and a larger accumulation of facts. But we did realise, even at that early stage, the necessity of starting upon a definite plan of work if these desired accumulations of facts were ever to be easily used afterwards. We therefore advocated 'natural faunal areas' instead of 'political boundaries.' But we are willing to admit that before we fully realised their importance, we carried out our idea somewhat faultily—as has been exhibited especially in our first volume. In some measure, perhaps, we have remedied this in subsequent volumes, and our later appreciation may perhaps be illustrated by the volumes upon the MORAY BASIN, and in the ninth volume, upon the NORTH-WEST HIGHLANDS AND SKYE, where we went back to rectify the proper positions of portions of SUTHERLAND AND WEST CROMARTY, bringing these into their proper faunal relationships.

Further, I think that the apology which appears in the Preface to the first volume for possible imperfections in observations by local observers may be considered to be less in evidence in A.D. 1905, because between 1887 and the present time the knowledge generally acquired has increased enormously; and I think that the same reproach can hardly be laid to their account for inability to observe correctly. I do not pretend, however, to speak of what improvements may have taken place outside these areas with which we have been most intimately in touch during the last forty years, and of those which we have not ourselves treated; but I *do* know that great advances have been made there also.

There still remains something to be done in order to bring the North of Scotland up to date and into line with the other areas. For that I have accumulated much matter since the issue of our first volume (dating 1889), as indeed I also have done for all of the areas since the publication of the several volumes—i. to ix.

As regards our second volume, it is desirable that I should mention that the Gaelic names there assigned are often only of local significance, and should not be accepted as of intrinsic values, or at all final—as, indeed, Mr. Carmichael, who was the authority then, has himself assured me. There is room for revision here, but that would have to be undertaken by some one having knowledge of that most intricate language, which, needless to say, the authors of this series never had.

In this same second volume we first advocated and announced our plan of making our records of facts, as far as possible, chronological in sequence—a point which, I think, has not proved useless in the after-progress.

But we dropped the practice spoken of at p. 12 (text of vol. i.) of including a complete list of British vertebrate animals, because that part of our plan received adverse criticism from our reviewers and from letters of our private correspondents, though we intended it partly to illustrate our chronological advocacy.

In that volume we also advocated the use of square brackets—[ ]—as a simple means of excluding such SPECIES as we considered not deserving of unquestioned admission, but avoiding, as far as possible, criticism of personal statements, except where such could not well be avoided. In such instances we preferred to leave it to ornithologists and naturalists to place upon these statements their own interpretations as to values, from their own appreciations of the text.

Another advance we think was made, in that we began more fully to realise the desirability of defining what we called "geographical position," in contrast or in relationship to adjoining areas

In pursuance of this, we found it desirable to enlarge upon the descriptive chapters in our later treatment.

Not in all the volumes, but in some, appendixes appear, or introductory chapters upon the geology of the areas, and other subjects which appeared to us desirable.

The third volume (1890)—*The Birds of Iona and Mull*—can only be looked upon—as we indicated in the Preface—as a "relief volume," not in absolute plan or keeping with the rest, but as a contribution by a very able field-naturalist and observer; and as such I hope it has been accepted.

In our next volume (ORKNEY) we returned to the plan, and in it we desire to admit the incompleteness of our treatment of the Fishes, as indeed we also do as regards this part of our work in all the volumes; and we admit the desirability of some modifications suggested by our reviewers. The Bibliography in this volume represents a fairly complete *résumé* of previous information. But bibliography, when completed, will some day show how impossible it would have been to include everything within the space allowed in a single square 8vo volume. This is quite another undertaking.

In our fifth volume the same plan is followed, and the notes by the late Mr. Graham in vol. iii. were incorporated so far as considered necessary. But there still remains a considerable filling in of detail for the island of Mull, and also for the area of ARGYLL, upon which there is little doubt much of interest remains untold. Some of this has been attended to *since publication*, a considerable amount of material having been accumulated to date of 1906. It was indicated then also that a complete bibliography relating to our subject may at some future time be fully compiled and done justice to (*vide* Preface, p. vii).

The usual definitions of the boundaries and descriptions of the area received attention, and occupied—as these generally do—a considerable portion of the introductory chapters.

In the next two volumes of the series (MORAY) a departure was made, in that we saddled our patient subscribers with a double yoke of volumes. Perhaps we may be forgiven—at least in part—owing to the great size of this area, and also because we had to rectify our initial mistake in our first volume, in order to *complete this natural area*, and bring up to date the fauna of that part of the counties of Sutherland and Caithness which really belonged to the MORAY BASIN; and these just-mentioned excuses may perhaps be more effectual and justifiable than those mentioned at the end of the Preface written in 1895. In further justification, I may add that the introductory chapters occupy some 150 pages of close-written letter-press, and a slightly new departure has been introduced in a more detailed definition of the "faunal position," which replaces, or at least supplements, the former chapters upon "geographical position." This is only a natural result, arising from a better appreciation of the importance of "natural boundaries," and from a natural evolution in deduction from past facts; and to place on firmer ground the future amassing of facts.

Another feature also we introduced by giving in an appendix a summary of faunal values of the distribution of species in minor districts within the area. (I may say that this has been worked out for every area, and that it need not be a difficult essay to enlarge upon that, in order to institute more complete comparisons.)

Our eighth volume (SHETLAND), treating of a distinctly insular area, like ORKNEY and the OUTER HEBRIDES, required less minute treatment as to "geographical or faunal position," or importance in relation to the rest of Great Britain, as is indeed almost self-evident. But this is in some measure replaced by a more complete bibliography, as well as an indication of its position as relating to the Continent.

Perhaps the Fair Isle, lying between Orkney and Shetland, at that time of writing was the least known and least surveyed bit of land in Britain. This reproach may shortly be removed,[1] as there is likely to be a better opportunity of thorough investigation—as I write—in the present year of 1905; our indefatigable worker, Mr. Eagle Clarke, already preparing to invade its precincts during the autumn migration of birds there. (Chronology as at August 1905.) I believe Fair Isle will prove to be yet one more "key" to the elucidation of certain migrational phenomena, as well as instructive in distribution of species.

Finally, in speaking of these past volumes, I merely make mention of that immediately preceding this one—the ninth of the series—as it has been so recently issued as to require little of treatment further. Only, it may be desirable to take notice of it here, in so far that more attention has been paid to the subject of climate and its effects, *however much or however little may prove of lasting or only of passing importance.*

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[1] Has been removed by the records of the results of Messrs. Eagle Clarke and Kinnear's visit to the Isle in the autumn of 1905. (*Annals Scot. Nat. Hist.*, Jan. 1906.)

Of the present, or tenth volume, I leave it to speak for itself as in continuance of the others; and it will be seen, I think, that I have adhered to the same plan of work throughout. One small additional feature I may draw attention to, viz.: raising the question as to the importance or otherwise of some newly defined values in describing the position of species in the fauna, such as whether any species be "truly gregarious," or merely "flighting" at times of migration; whether birds exhibit truly gregarious tendencies all through their lives, or only herd together at times and seasons, influenced by circumstances over which they appear to have little or no control. In other words, whether certain birds spend all their lives in the company of others of their species, or separate at a certain season and become independent of one another's society.

If these newly introduced values should tend towards any further elucidation of the *mysteries of migration,* and of dispersal and distribution, or even should they not, I hope the object of this series will at least receive recognition as an attempt to throw some new light upon these objects of study.

# ANNALS OF THE PERTHSHIRE SOCIETY OF NATURAL SCIENCE.[1]

By Henry Coates, Esq., F.R.S.E.

PERTHSHIRE NATURAL HISTORY MUSEUM.

The Society was founded on 28th February 1867, by fifteen gentlemen desirous of promoting in Perth the practical study of natural history, "by the exhibition and preservation of specimens, the reading of communications, by lectures, excursions, and the formation of a library and museum." This inaugural meeting was held in "a back room in Charlotte Street," and was presided over by the late

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[1] This sketch is condensed from an address delivered by the president, Mr. Henry Coates, at the Thirty-Eighth Annual Meeting, on 9th March 1905, and printed in the *Proceedings*, vol. iv. part II., page lvi. The statistics are brought down to March 1906.

Dr. F. Buchanan White, F.L.S., F.E.S., who was appointed the first president. During the first three years the meetings were held in the Glovers' Hall, George Street. During the next ten years, from 1871 to 1881, the home of the Society was in a modest upper room in St. Ann's Lane, near the old church of St. John, which served as lecture room, library, and museum in one. On 1st October 1881 the Society entered into possession of the fine building in Tay Street, facing the river Tay and the Hill of Kinnoull, which has been its home ever since. Here ample library and lecture room accommodation were provided, on the ground floor, with museum hall above.

It has been the aim of the Society, from its very inception, to make the natural history of the county its special study, and the formation of a regional museum has been one of the means by which it has endeavoured to carry out this aim. This was clearly defined by the first president in his inaugural address, when he used the following words: "As regards the formation of a museum, the Society, while not neglecting to form a good general typical collection, should more especially devote itself to the acquisition of as perfect a museum as possible of all the natural products of the county." It was therefore thought desirable that the local collections should be entirely separated from the general collections, and in 1895 a large and well-lighted hall with gallery was erected at the back of the original building, and was opened on 29th November in that year by the late Sir William H. Flower, Director of the British Museum of Natural History. In this new building are displayed all the collections representing the fauna, flora, and geology of Perthshire and the Basin of the Tay, the ground floor being devoted exclusively to the vertebrate animals and the gallery to the invertebrates, plants, and rocks. The original museum hall now contains the index or type collections. On 2nd December 1902 the museum was formally handed over to the custody of the Town Council, but the members of the Society still continue to exercise a fostering care over the collections.

During the thirty-nine years of the Society's existence, from March 1867 to March 1906, the membership has steadily increased from the original 15 to a total of 430, including one honorary member, 15 corresponding members, 395 ordinary members, 12 associate members, and 7 associates.

During the same period there have been five occupants of the presidential chair, whose terms of office were as follows:—

| | |
|---|---|
| 1. Dr. F. Buchanan White, 1868 to 1872 and 1884 to 1892, | 13 years. |
| 2. Col. H. M. Drummond Hay, 1872 to 1874, and 1882 to 1884,[1] | 4 „ |
| 3. Sir Thomas Moncreiffe, Bart., 1874 to 1880,[2] | 6 „ |
| 4. Dr. James Geikie, 1880 to 1882, | 2 „ |
| 5. Henry Coates, 1892 to 1906, | 14 „ |

The monthly meetings during the winter sessions have numbered altogether 269, being an average of 7 each winter. At these meetings 387 papers have been read, besides shorter communications, being an average of 10 papers each session. This total includes 59 presidential addresses, delivered at each annual meeting, and also, in recent years, at the opening meeting of each session. Of these papers, 190, dealing with the natural history of Perthshire and the Basin of the Tay, have been published in the Society's *Transactions and Proceedings*. The subjects dealt with were as follows:—

| | |
|---|---|
| Mammals, | 3 papers. |
| Birds, | 31 „ |
| Reptiles and Amphibians, | 2 „ |

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[1] Col. Drummond Hay left no notes or MSS. of any importance beyond the catalogues of the vertebrates he had prepared for the museum. These have been (April 1896) handed over to the Society for preservation, and a note-book and various short MS. notes along with these; but, as I am informed by Mr. Henry Coates, "these are of a very fragmentary character, and not, I fear, of any real value" (H. C. *in lit.*, 16th April 1896).—J. A. H.-B.

[2] There is an appreciative memorial notice by Dr. F. Buchanan White in the *Scottish Naturalist* for 1879-80, p. 145, accompanied by an excellent likeness, which I have the pleasure of reproducing. There is another portrait (1890) and excellent memoir, and very full list of Dr. F. Buchanan White's numerous literary contributions, by Professor Trail in the *Annals Scot. Nat. Hist.* for 1895, April number, pp. 74-91. Sir Thomas Moncreiffe was born 9th January 1822; died 16th August 1879, in the fifty-eighth year of his age. He was professedly more of an entomologist than an ornithologist, but with the true instincts of a field-naturalist he observed also accurately in other departments. He was president of the Cryptogamic Society of Scotland in 1875, and president of the Perthshire Society of Natural Science, and an active member. He was also "cairn-master" of the Perthshire Mountain Club—an offshoot of the Perthshire Society of Natural Science. He is ever held in loving remembrance as one of the first promoters of the present museum.—J. A. H.-B.

Dr. F. BUCHANAN WHITE.

| | |
|---|---|
| Fishes, . . . . | 1 paper. |
| Invertebrates, . . . | 32 papers. |
| Flowering Plants, . . | 35 „ |
| Cryptogams, . . . | 18 „ |
| Geology, . . . . | 36 „ |
| Physiography, . . . | 5 „ |
| Chemistry, . . . | 1 paper. |
| Meteorology, . . . | 22 papers. |
| Archæology, . . . | 4 „ |

The attention paid to the different groups, as indicated in the above list, corresponds pretty closely with the completeness of the collections in the museum. As regards vertebrates, mammals, reptiles, amphibians, and fishes have received a fair amount of attention, although not so much in recent years. The collections are nearly complete. Birds have always been an attractive group, and the *Transactions* are fairly rich in ornithological papers bearing both on distribution and habit. The collections of birds, nests, and eggs are about as complete as they can be made in the meantime. A good deal of work still remains to be done in working up the vertebrate fauna of the county. As regards the fishes, reptiles, and amphibians, for instance, no complete record appears in the *Transactions.*

In addition to the papers referred to above, which have been communicated to the ordinary meetings, several special courses of lectures have been organised by the Society from time to time, some intended for students of zoology, botany, or geology, and others of a more popular and educative nature.

The Society has always displayed considerable enterprise in the publication of the investigations of its members, especially in regard to regional research. This will be apparent from the following chronological list of the publications which it has printed and issued:—

1. "Perthshire Society of Natural Science: Inaugural Address by the President, 7th March 1867." Demy 8vo pamphlet. 1867.
2. "The Proceedings of the Perthshire Society of Natural Science for Session 1869-70." 12mo. 1870.
3. "Fauna Perthensis: Part I.—Lepidoptera." 4to. 1871.

4. "The Scottish Naturalist." Edited by Dr. Buchanan White. 1871 to 1876. 3 vols. Demy 8vo.
5. "Proceedings of the Perthshire Society of Natural Science." Sessions 1881-2 to 1885-6. 1 vol. of 5 parts. Wide 4to (double column).
6. "Guide to the Arrangement of the Perthshire Natural History Museum." Demy 8vo. 1884.
7. Ditto. New Edition. 1889.
8. "Transactions of the Perthshire Society of Natural Science." Demy 8vo. Vol. i., 1886 to 1893; vol. ii., 1893 to 1898; vol. iii., 1899 to 1903; vol. iv., part i., 1903-4; part ii., 1904-5.
9. "Proceedings of the Perthshire Society of Natural Science." Demy 8vo. Vol. i., 1886 to 1893; vol. ii., 1893 to 1898; vol. iii., 1899 to 1903; vol. iv., part i., 1903-4; part ii., 1904-5.
10. "Catalogue of Books in the Library of the Perthshire Society of Natural Science." Demy 8vo. 1892.
11. "The Natural History of the Banks of the Tay." Cloth, 8vo. 1895.
12. "The Flora of Perthshire," by Francis Buchanan W. White, M.D., F.L.S., F.E.S. Edited by James W. H. Trail, A.M., M.D., F.R.S. Cloth, post 8vo. 1898.
13. "Diagramatic Chart of the Mountains seen from Corsiehill, Perth," by John Ritchie, LL.B. Cloth, 12mo. 1903.
14. "Perthshire Society of Natural Science. Library Catalogue." Demy 8vo. 1903.

It will thus be seen that the Society has published detailed records of its work during the following periods:—

| | | YEARS. |
|---|---|---|
| *Proceedings*, . . . . | 1869 to 1870, | 1 |
| *Proceedings*, . . . . | 1881 to 1886, | 5 |
| *Transactions and Proceedings*, . | 1886 to 1905, | 19 |
| Total, . . . . | | 25 |

Included among the local papers published in the *Transactions and Proceedings* are several important series dealing with particular districts, such as those on the Natural History of Kinnoull Hill, the Natural History of the Banks of the Tay, the Flora of the Tay and its tributaries, the Geology of the various regions of Highland and Lowland Perthshire; as well as papers on the Physiography of the county and on the origin and distribution of the Fauna and Flora of the region. The most important work published by the Society, how-

COL. MAURICE DRUMMOND HAY.

ever, was the *Flora of Perthshire*, on which Dr. Buchanan White was engaged at intervals during the last twenty-five years of his life, and which was issued after his death under the editorship of Professor J. W. H. Trail.

The Society's library, which has been added to year by year, now contains 2579 volumes, representing 1130 works, all of which have a bearing, more or less direct, on natural science subjects. The council, in making their selections, have aimed at acquiring works which were beyond the reach of working naturalists of moderate means, as well as purchasing a certain number of more popular works for beginners in the study of natural history. The Reference Department now contains some really valuable scientific works, such as the *Challenger Reports*, the British Museum Catalogues, Dresser's *Birds of Europe*, Sowerby's *English Botany*, Jeffrey's *British Conchology*, Fowler's *British Coleoptera*, Barrett's *British Lepidoptera*, the publications of the Ray Society, the Cambridge Natural History, the publications of the Geological Survey of the United States, etc., as well as the leading scientific journals, and the Transactions of scientific societies.

During each summer session a number of excursions are arranged to different parts of the county, generally with some special object of research in view, and under the guidance of a selected leader. Over two hundred of these have been held, most of which have been described in the *Proceedings*, with a record of the more interesting finds. The ground covered has been very varied, embracing nearly every region of Highland and Lowland Perthshire, at all elevations, from sea-level to the tops of the highest hills. The following list indicates the nature of the localities, several of which were visited on more than one occasion:—

| | |
|---|---|
| Cross-country excursions, | 21 |
| River banks, | 29 |
| Glens, | 27 |
| Lochs, | 23 |
| Hills (under 3000 feet), | 11 |
| Mountains (over 3000 feet), | 11 |
| Quarries and geological sections, | 17 |
| Archæological and photographic excursions, | 17 |
| Coast excursions, | 7 |
| Special excursions, | 5 |

Several of these excursions, especially those to lochs and to different points on the coast, were undertaken for the purpose of investigating the breeding haunts of certain birds.

It is interesting to note that three societies whose influence has spread over the greater part of the country have been founded within the precincts of the Society's building. These are the Cryptogamic Society of Scotland, the East of Scotland Union of Naturalists' Societies, and the Scottish Photographic Federation. Within the Society itself three inner circles have been formed, namely, the Mountain Club, the Photographic Section, and the Junior Section. The last-named was the outcome of the Children's Essay Competitions, of which eight have been held, with a total of 1074 competitors.

From the foregoing summary it will be seen that the Society has accomplished a considerable amount of work since its inauguration in 1867. Much however still remains to be done in working up the natural history of the region. There is scope, for instance, for original research in investigating the life-history and development of the various forms of animal and plant life, as well as the more obscure problems of structure and function. Studies such as these demand leisure and patience, as well as skill and experience; but even small additions to the sum of human knowledge are of value in the progress of scientific truth.

SIR THOS. MONCRIEFFE, BART.

# DESCRIPTIVE CHAPTERS.

## GENERAL WATERSHEDS.

The great Basin of the river Tay and its tributary streams alone covers a vast area, greater in capacity than that of any other river system in Scotland. It contains no less than some 2600 square miles. The whole of this great basin may be described, along with that of Strathmore and its easterly flowing waters, as being almost completely hemmed in by the continuous chain of the Grampians and their extensions, as already spoken of, separating Tay from Dee, and from the Moray Basin along its northern boundaries; even the passes through the crests of this huge watershed are of great altitudes, as for instance at the head of Glenshee at or near the Devil's Elbow (2060 feet), and at lesser altitudes; at Glen Tilt (1413 feet), and at Drumouchter (1500 feet), before the descent into the valley of the Spey, *viâ* the course of the river Truim, begins; whilst other much lower passes occur near Tyndrum, and between the head-waters of Forth and Tay, by the Allan Water.

Westwards, after the huge mass of Ben Alder is passed, which towers high above the west end of Loch Ericht, the vast Moor of Rannoch stretches for many dreary miles to the bases of the western mountains—the Bhuachaille Etive and the group of mountains which cluster around the head of Glencoe and the Black Mount Deer-forest. These practically form the western boundary between Tay and Argyll. The new West Highland line of railway passes through the fringes of the Moor of Rannoch, entering over the watershed near the county march of Perthshire, and near the heads of the Water of Tulla. But westwards from the line of railway there is a great broken stretch of flow-land intersected by the ramifications of the clusters of lochs which form the head-waters of the Tay system, and flow by Lochs Ba and Laidon and the river Gaoire to Loch Rannoch, and the Tummel to the river Tay. To the south, the Moor of Rannoch is bounded by the high spurs of the main ridges which encircle the long valleys of the Lochy and the Lyon.

Passing over the watershed near Tyndrum (820 feet), where the railway crosses to descend to Loch Awe and to Oban, we come to the south-west continuations of the Grampians, and find that the boundary limits continue to be well marked. At Crianlarich the West Highland Railway crosses the watershed between TAY and CLYDE, at the head-waters of the Falloch Water, at an elevation of some 600 feet. And near this point also begins the separating mountains which divide the drainages of CLYDE and FORTH.

Continuing onwards in an easterly course, the mountainous character is still marked, and though the whole drainage of the mighty mass of Ben More (3845 feet), flowing from *every* side, belongs to TAY, still the sister mountain of Stobinnean (3827 feet) is the true sentinel of both TAY and FORTH, its surplus waters finding descents to both these natural areas, *viâ* Lochs Doine and Voil to the Teith and Forth rivers, and *viâ* the Dochart to Loch Tay.

Thence eastwards the mountains begin to lower in altitude, but still have dominant peaks and summits to heights of 3000 feet—such as Ben Vorlich (3224 feet) and Stuc á Chroin (3189 feet) in the Glenartney Forest, and Ben-y-Hone or Ben Chonzie (3048 feet) near Crieff, which latter however is really *well within* TAY, and contributes all its drainages on all sides to TAY, *viâ* the Earn and Almond. This, with the much lower watersheds eastwards through the plain of the Vale of Allan and the Lower Earn, and the ridges of lower elevation of the Ochil Hills, finally running out at the Fife-Ness on the coast of Fife, constitutes the remaining portion of the boundaries of TAY. In this part the salient point seems to me to be the very low ridge which separates the head-waters of the Allan Water from the east-flowing tributaries of the Lower Earn near Auchterarder. This ridge, where crossed by the Caledonian Railway near Crieff Junction, is about 400 feet above sea-level, and therefore cannot offer any very serious obstruction to the migratory flights of birds which, it is well known, pass thus from TAY to FORTH and onwards through the Vale of Menteith to Loch Lomond and CLYDE.

Thus the Tay estuary combines with the southern portion of TAY in leading migrants westwards.

Through the remaining range of the Ochil Hills, as indicated, the hills are of more lowly proportions, reaching from 1080 to some 1715 feet in height, culminating in the latter in the Lomonds of Fife.[1] East of the Lomond stretches the great plain of the Howe of Fife, with the river Eden winding slowly onward to join the sea at St. Andrews, the highest extension of the boundary-lands on the coast being at Fife-Ness.

But the great central mass of the 2600 square miles of the drainage area of the river Tay alone is ribbed by many spurs of the main ranges, and constitutes the principal cause of the Highland scenery of lovely Perthshire. Many of the dominant mountains of these spurs rival, and indeed, in some instances, exceed the altitudes of the main range of the Grampians. Thus I instance Ben Lawers and the pyramidal cone of Schiehallion, and many other 3000-ft. satellites north of Loch Tay, such as Meall Garve or Scoupa (3057 feet), and quite a group of giants stretching westwards, too numerous to name here.

In the north-east there are few great mountains dominant in the landscape, because the far-reaching plain of Strathmore which isolates the spur of the Sidlaw Hills from the Grampians is so great in width as to dwarf to the vision the distant mountains in the north. Nevertheless, there are many goodly hills amongst those of what I may call the Carn-districts[2] or spurs of the main ranges in Forfarshire and Kincardineshire, which reach the respectable elevations of the 2500-feet levels. When we get amongst those to the west of Glen Clova, the ridge begins to ascend, and the 3000-feet altitudes are again reached. I mention only a few of these: Dreish (3105 feet), Mayar (3043), Glas Maol (3502)—close to the divide—Creag Leacach (3238), Glas Thulachan (3445), and Carn an Righ (3377). Then comes the giant Ben-y-Gloe (3671), and westwards through the Atholl forest-tops, reaching similar altitudes, such as Beinn Dearg (3304), and Glas Mheall Mòr (3037).

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[1] It is incidentally mentioned in Hume Brown's *Early Travellers* that in 1598 Fife contained few or no wooded areas of any extent, only "Noblemens and Gentlemens dwellings compassed by little groves" (*op. cit.*, p. 85, *auct.* Fynes Moryson). And even at the present time of writing the East Neuk of Fife and the Howe are noticeable in this respect by the strongly marked patchwork patterns of small plantations dotted about over the slopes and on the lower levels, interspersed with agricultural and grazing grounds.

Again: "From this point, the Howe of Fife, carrying the waters of the Eden to the sea near St. Andrews, is bounded on the south by the high ridge of barren land," etc., which separates it from the Forth drainage slopes. (See *The East Neuk of Fife*, by the Rev. Walter Wood, A.M. 1862. Oliver and Boyd. This little work is full of interesting lore regarding the country closely adjoining the TAY area, and from which I have extracted the above portion of a sentence regarding the boundary line. In this book there are more than thirty pages on Geology and twenty-six pages on Botany (appendixes), and a careful index.)

[2] For a definition and description of my so-called "Carn-districts," see our MORAY Fauna, vol. i., introductory matter.

Dominant in the north-west again, we come to Marcaonich—already mentioned—a great flat-topped mountain on the march line between TAY and MORAY.

Among the lower foot-hills of the Grampians, especially in the north-east, there is singular richness in wild berries. All over the round-topped hills, for instance, of the upper Inshewan shootings, near Kirriemuir, I have found when shooting there in August acres and acres of Scottish cranberries (*V. vitis idæa*); and alongside the roads in the minor valleys are great stores of vigorous canebrakes loaded with rich full-sized wild rasps equal to the finest garden produce. On the stonier ground of the slopes, as, for instance, on the steep sides of the Den of the Batternach, above the old pine woods, the creeping plants of the crow-berry (*Empetrum nigrum*) cover the interspaces, and cling even against the loose stones themselves. Higher, on the further tops, a few patches of avern plants (*Rubus chamemorus*) bear some fruit, but the larger areas of this plant, with its delicious berries, occupy the higher levels at about 2500 or 2600 feet.[1]

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[1] The avern is usually found in Scotland in greatest quantities *above* the 2600-feet levels. But I know of one locality in the midland counties of Scotland where it flourishes and bears abundantly and very regularly, and that at not more than 1000-feet altitude. At this locality, in 1901, I had more than 57 lbs. of fruit gathered; and in 1904, 50 lbs. Though I had known of this low-lying locality for a number of years, the fact was long discredited by our botanists, and their own inspection alone convinced them. I am not, however, aware of other places where they flourish thus at such a low elevation in any such profusion or fruit so regularly, unless they may do so anywhere to the south of the Borders. Much of this country around these foot-hills partakes to a considerable degree of the natural features of what has been elsewhere described as "Carn-districts." (See our volumes on the MORAY BASIN.)

Avern or cloud berry of Scotland and England (*Rubus chamemorus*); Moltebaer of Norway; Moroshka of Russia; "Knoop"—local in north of Scotland.

Around the high and lone Loch nan Eun, beloved of Sea-gulls (*Larus canus*), even at that altitude the hills partake of this Carn character to the southward; but to the north the main ranges rise, as already stated, to the 3000-feet levels and peaks. Iutheran More and his lesser brother, Iutheran Beg, to the west, rise beyond that height, and break away in gigantic precipices and screes to the north —or DEE—side of their watersheds. It is now many years since I stood on a point of vantage above Loch nan Eun, and looked far away south and south-east and south-west into Forfarshire and Perthshire, and over the dim plain of Strathmore, under or through a shimmering haze of warm amethystine hue. It was early morning on the tops. Our party had climbed the rugged sides of the Alt Ghleinn Thaitneich (O. S. sheet 65), which brattles away down amongst giant boulders and chaosed screes of débris, and through "*pleasant*" haughs of the glen; and we had left behind, and far below us, the Spittal of Glenshee. We were intent upon sampling the fine pound trout for which Loch nan Eun was at that time famous. This was in the early days of August. On the evening of our arrival it was cold and chilly in the extreme. We occupied the old "bothy" or boat-house, and were soon intent upon building a great fire, which in a few minutes roared up the chimney of the almost ruinous habitation. Our fuel was good. It consisted of the tarry fragments of the old wrecked boat, which we had full permission to utilise, along with a few peats which one of the gillies had "borrowed" from a "bing" as we passed, and had hidden in the folds of his plaid.

The morning came in grey, and cold and misty. Even as the sun rose the moisture-laden air refused to be warmed and vivified. To the north and west lay long rolls of gloomy mist-wrack concealing the higher rounded ridges of Ben Iutheran Beg. Once only did we catch a momentary glimpse far down below the mist into the long narrow tributary valleys of the Dee. But to the south and south-east the haze became "shot" with sun-beams as the morning advanced; and if we did not command as perfect or as extensive a panorama as we would have done under better auspices, at least we saw enough to enable us to realise "the might have been."

We saw the fertile winding valleys of the foot-hills, and their encompassing cairns; and beyond, far down through the filmy lower strata of that sun-shot haze, the still richer and more fertile plains of wide Strathmore peeped out here and there.

Now and then, and here and there, we caught the gleams of small sheets of water; but the distances were rendered too indistinct, and we could not distinguish the further boundaries of the plain, nor make out the still further range of the Sidlaw Hills, which bound the southern verge of Strathmore. Only in one direction was the dim and ghostly outline of a great mountain seen, which—rightly or wrongly at the time—we took to be Ben Vrachie, but which from a study of the map and later-acquired knowledge of the outline, I now believe to have been Ben-y-Gloe, viewed past the nearer shoulder of Ben Tuilachan—itself a monster in proportions; and a little more to the right and to the south of west what now appears to have been Carn an Righ was silhouetted on the fog-bank.

We sampled the Loch nan Eun trout both as to sporting abilities and their quality on the breakfast table, and pronounced them "good." And then we bade a long farewell to our temporary sheiling which had sheltered us during the cold damp night and morning. We fished down the Tatnach Glen for a mile or two, catching great store of small but active and sporting trout; and then walked briskly onward upon our backward track past Finnigand Farm, and so on to our quarters at Mount Blair, where for ten days we spent our time upon the well-stocked moors of Blair and Dalnaglar. But of all my time there, the memory of lone Loch nan Eun bears off the palm of memory of Glenshee.

Many another mountain-top of the Eastern Grampians can yield as good and better views of the great Strathmore, but I hope I have succeeded in conveying some idea of its extent and beauty, even from our imperfect opportunity. Ten days later I was rattling down the steep road over the shoulder of Ben Vrachie to catch the train at Pitlochry for still further north, to still remoter solitudes of the north-west Highlands and Sutherlandshire.

Keen memories were behind me, and perhaps still keener memories shadowed forth what lay before me of my favourite Scottish county.

## THE VALLEYS OF THE AREA.

Perthshire can, I think, with justice claim to contain more varied and more lovely scenery than any other area of Scotland. Almost every variety exists, from the wildest mountain recesses, tops, and screes and haunches, such as the Glens Lyon and Lochy spurs of the main range or the great rolling summits of the Grampians which encompass the whole; and the vast, dreary, silent Moor of Rannoch, with the great extent of flow-land and gravelly heather-topped "knobbies" and glimmering tarns and lochlets, and the longer and wider lochs Baa and Luydon; down through the narrow veins of the descending waters of innumerable streams, all rushing to meet the parent river of the Tay; thence onward to the quiet haughs and winding waters of the lower reaches in the great plains of Strathmore and through the Carse of Gowrie; and lastly, to the "links" and sand-hills of north-east Fife and Forfar, and the rocky coast-line north of Arbroath. High amongst the 3000-feet mountains, deeply embosomed, lie innumerable "sleepy hollows" of the hills, traversed by hundreds of sparkling rills, with their narrow "haughs" stretching along their banks on either side, flanked by huge ribs and sinews and tendons of the mountains, reaching even to the very centre of the area, and carrying this wondrous variety of scenery throughout the whole of their extent. Through all the vast Breadalbane territory—or the older and even greater "Region" of Atholl, which spreads with massive grandeur over nearly three-fourths of the county of Perth, and laps over in the west into ARGYLL and the Blackmount Forest-land—are the many famous grouse-moors, rich in their red or purple blaze of colour, well-beloved of the weary *habitués* of our overcrowded cities.

Above the heather tracts rise the steep hills which afford homes for the Ptarmigan, the Dotterel, and the Snow-Bunting, and from which the deer descend at times and seasons from their summer pastures in the afforested portions. But deer-forests are rapidly on the increase now year by year, and the grouse-ground is becoming smaller and smaller annually. At the present time deer-ground stretches almost from sea to sea—from the western limits of the old Blackmount on the shore of Loch Etive far to the east of the chain of the Grampians at Glen Tanar of DEE; thus being also continuous with that other great range of afforested grounds which reaches up our west coast almost to Cape Wrath, and of which I have spoken in the last issued volume of this series. What the ultimate result of this may be, there are many opinions held by different individuals. What it is or has been up to this time is abundantly patent, at least along our western seaboard and to the west of the backbone of Scotland. I have shown this, I think, in a previous volume, and I have no intention of repeating it here. I will only add that even greater additions are likely to be made in the near future, which will appreciably broaden this deer-belt across Scotland.

The above superior portion of the whole area may be defined—as has been done by Dr. Buchanan White—as the Great Upper District above the 200-feet levels at the junction of Tay and Tummel. But in addition to this tract, we must not forget the lesser Forest of Glen Artney in the south-west, which has a claim to almost equal position in the scale, and which impinges upon the sister area of FORTH and the broad Vale of Menteith, as well as the tract of grouse-moors which reaches from Crieff northward to Glen Lyon, and stretches across from the confines of the Blackmount Forest in the west to the neighbourhood of Perth, and eastward into Forfar and Strathmore, embracing the more isolated ranges of the Lomonds in Fife and part of the Sidlaw Hills in Perth and Forfar.

Before quitting this high division of the area, I may mention the principal lochs which act as reservoirs for the river Tay, and resting pools in many cases for the ascending salmon. Chief amongst these is the grand sheet of water which forms Loch Tay—famed among salmon-fishers—and fed from smaller lochs among the hills, such as Loch Dochart in the west, and many smaller ones high up on the shoulders of the hills to the north. Then we have Lochs Tummel and Rannoch, the latter draining a great expanse of country from the farthest boundaries of the Moor of Rannoch, and also the long eighteen-mile trench of Loch Ericht from the watersheds of the main range of the Grampians at Drumouchter. Minor sheets of water are almost innumerable within the boundaries of the county of Perth, but all, by innumerable channels, flow on to swell the broad bosom of the parent Tay, and with their tributary burns to find comparative rest from the wild winds of heaven, and their writhing through their rugged glens. Over many a rough-and-tumble precipice they often have to pass, plunging with the " roar of waters " into many a deep abyss, shot with sunbeams and spanned by rain- or water-bows, past rich banks and hanging natural gardens of fern and wildflowers ; and glide or ripple more gently as their troubles cease through dewy or spray-wet meadows and lonely haughs. All along their courses rich are the botanical treasures displayed in their times and seasons, from the high alpine flora of Ben Lawers, to the buttercup and daisy of the mead ; from the gaunt remains of the old Caledonian pines which here and there are still in evidence, to the gardens of the valleys and the plains, and onwards to the sparse flora of the sand-hills, or that of the more varied débris-slopes of the undercliffs of the rockier coast-lines, and the marine vegetation of the foreshore ; from the dragon-catching " sundews " of the Moor of Rannoch, to the introduced heather plants of Tents Muir in Fife.

It is vain to attempt minute description amid such wealth of loveliness or the marvels which present themselves at almost every step in endless variety and ever-changing charm, and which reward the searcher, whether he be deer-stalker or mountaineer, grouse-shooter or even the pursuer of the humble " bunny." The artist may enjoy them all ! The naturalist cannot fail in everyday interest, in whatever branch he chooses ; and the botanist may simply revel, with scarce restraint, from alpine height to rocky or benty shore, where the Tay has contributed, and ocean heaped up its treasures in the sea-pools.

Need I say more ? I think not ; because how many keen-eyed men and women are there to whom at least the main pathways of the tourist, the angler, and the mountaineer have not revealed the greater portion of these gems of Highland scenery ? Many, indeed, have *seen,* but perhaps not *observed.* To the latter I cannot appeal. But many others—and I hope still the majority—*have observed*, as they wended their devious ways among the towering mountain-tops, and giddy screes, and grassy slopes, the heathery foot-hills or the bracken-braes. Some have scrambled through the hoary remnants of the old Caledonian pine woods—entomologist or sportsman—tripping, it may be, at times upon a half-concealed old juniper stump or block of moss-covered boulder ; or have waded up the mountain burns in successful pursuit of the speckled trout, or " thrown his salmon-fly " far out upon the parent stream " herself."

Only of some of the remoter parts will I speak, and that as shortly as may be—induced to do so by my latest visit to the glens, renewing acquaintance with many an old remembered haunt, or seeing for the first time some others—and as opportunity occurs, recalling here and there some points of light from the darkened chinks and crevices of memory.

## BELL ROCK.

I have always felt some dubiety as to whether the Bell Rock should be considered as a stepping-stone of bird-migrants as leading to TAY, or more accurately to FORTH, or, as indeed it may be, to both in some degree. If we consider the known directions of migratory flights, in so far as taught by returns from the lighthouses in the schedules, both in autumn and in winter, and again in spring, it certainly seems that a much greater bulk of these migrants pass the Isle of May than appear to pass the Bell Rock. About the Isle of May there can be scarcely any real doubt that it forms a direct stepping-stone and important lead to FORTH; but though the geographical position of the Bell Rock in the North Sea, lying off the coast opposite the estuary of the river Tay, may appear to influence the latter highroad of "birds as travellers," I doubt if that has been at all satisfactorily proved. If the trend of migrants in normal conditions is from the north-east over all our coasts—which, however, I am not yet prepared entirely to accept—then Bell Rock seems to lie much more directly in the line for the entrance of FORTH, than in that of TAY. But if the principal lines be found to be more directly from the east, then Bell Rock may prove quite as much in the line for TAY as for FORTH. Bell Rock, at all events, does not appeal to me as the key to TAY in the same way that Isle of May appeals as the "Key of the FORTH."[1] To use other words—which I think I first used in our earlier reports on migration—a "closed fan of migration" would, with a north or north-east wind, have the effect of concentrating the flights upon the entrance of the Firth of Forth. But if a following wind came, these same flights would open out and cause a "spread fan" of migration, which would then land a number of our migrants—though not all—upon the coasts of Forfar and Kincardine, and thus have an influence on TAY direct. But if we accept the normal direction of the arrivals of migrants to our shores as with a north-west wind, and to be from a north-east direction —as indeed Mr. Eagle Clarke has pointed out in his digest—then the really true line of flight would miss out the entrance of the Tay to a very appreciable extent. Perhaps this may appear a little more likely to be the case if my readers will compare the much greater abundance of shore-birds within the arms of FORTH than that within the arms of TAY.

Mr. William Evans has expressed himself as satisfied to accept the Isle of May as the key of migration to FORTH, and to give up Bell Rock on account of its geographical position; but I am still in doubt whether Bell Rock, from a faunal point of view, belongs really to TAY at all, or at least in any appreciable degree.

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[1] The map under "Little Auk," p. 347, may help to illustrate my meaning somewhat, though that bird is scarcely to be called a migrant.

Geographically, Bell Rock belongs to TAY; but, migrationally, Bell Rock, to my sense of fitness, belongs to both TAY and FORTH, but in a much less degree to TAY than to FORTH.

Therefore, in support of my dubiety, I prefer to place this account of Bell Rock in inferior type.

A little further here on this question. If we compare dates of the arrivals of birds in the central portions of Scotland, and south of the Firth of Forth, with those to the northward of the Tay, and if we grant that the drift of migrants in greatest bulk is from the north-east, we find that some species prevail in numbers to the south, and others prevail in numbers to the north. Now, the contours of the Sidlaw and the Ochil Hills serve on land as a splitting wedge to flights of some species apparently, as I hope may appear under some of the species I have treated of in the lists. It is quite a difficult problem to solve, but at present I cannot apportion Bell Rock to TAY with any sense of satisfaction to myself, if I take species for species as witnesses. Thus, some species appear to affect the TAY route, *i.e.* pass the southern slopes of the Sidlaws and north side of the Ochils, and others seem to prefer the FORTH route, *i.e.* by the south slopes of the Ochils and the wider Firth of Forth. In the same way, greater numbers pass up the Firth of Forth than pass up the Tay. The wider are the entrances to our land-routes, apparently the greater are the numbers of individuals that take advantage of these wider routes. Thus, in east England there are fewer land-routes to arrive at the knowledge of, and a much greater bulk of migrants comes to the eastern shores of England south of the mountainous parts, and continues an undeviating flight across that part of Britain, wherever the shores are low-lying and the low country continues far inland.

Very shortly I desire to instance just a few species. The Whimbrels are scarce across TAY. But though not uncommon at Tents Muir, which lies between the entrances of the Firths of Tay and Forth, their further flight seems to take them along the south slopes of the Ochils, and so on to the head of the Firth of Forth; and they then divide against the eastern spurs of the central hills of Stirlingshire, and the greater number follow the south slopes and along the southern branches of these hills in preference to those of the northern slopes.

The Great Grey Shrikes are not uncommon at times from Girdleness south along the coast and inland; but to me their occurrences appear to be more scattered there than further south along the Ochils on their south slopes and through the central districts of Scotland. But here a larger accumulation of records may prove necessary before this can be stated with accuracy.

Wood-Pigeons of Continental origin at some seasons affect the TAY route more than the FORTH route, at least as regards the higher reaches, but enormous numbers arrive first upon our shores at the West Sands of St. Andrews;

as I have over and over again witnessed, and as is well known to resident observers there. For a few days the Vale of Menteith holds vast flocks, but there they rarely remain for any length of time. At the same period scarcely any increase in numbers is observable upon the south side of the central hills of Stirlingshire, and the bulk of these vast flights passes on west and disappears. But to the Lothians a still vaster immigration takes place, and a great number of those also pass over Tents Muir on first arrival from seaward.

I might also instance the comparative numbers of Waders in the estuaries of FORTH and in TAY generally, but prefer to leave that for further proofs and observations. When FORTH comes to be treated of, no doubt attention will be given to these matters more fully.

There can be, however, little doubt regarding the faunal position which the reaches of the Lower Tay hold when we come to compare the matters relating to it in detail. I will mention in these introductory portions of this volume certain stepping-stones, as it were, to the further west; and also under the separate species there will be found many references which, if studied by the expert, will, I believe, indicate some considerable shaping of the land-routes of migrants on these portions of an indented coast like that of Scotland. I say nothing here of wider reaches, or more continuous flat lands and levels, such as predominate further south; but perhaps some of the readers of our previous volumes may find earlier indications of my views in connection with an elucidation of some of these points, as well as opinions elsewhere expressed.

An examination of the schedules sent from the Bell Rock—which I have not had an opportunity of again consulting—may perhaps assist in deciding the above and a few other points; but no doubt Mr. W. Evans, who has made a special study of FORTH, will be able to institute the proper comparisons.

In the following description of certain districts which I visited for the purpose of renewing acquaintance with some, and seeing others for the first time, and obtaining suitable materials for intelligent illustration, I begin with the shores of Fife which drain into TAY, and pass onwards up the lower Tay reaches to the Earn Valley, and so on westward round the confines of the area; and describing a rough circle, again come to the south coast of Forfar and the embouchure of the river Tay.

While describing the general skylines, however, in a previous chapter, I have reversed this procedure, as that plan preserves a certain continuity with other natural areas before treated of, which lie more to north. This plan provides for further continuous treatment of areas to the south, and perhaps I may be allowed to express a hope that such continuity may be preserved as far as possible by those who may become responsible for their treatment. Such, at all events, has been the uniform plan upon which Buckley and myself have worked so far as we could, in order to preserve a certain uniformity in our treatment in a complete series—and as far as possible to have the uniformity almost "like a regiment of soldiers in line, even to the buttons on their coats." Any divergence from this rule would only have confused certain final conclusions which we foresaw might arise in a wider analysis or final study of the whole series, whether we should be able to accomplish that end ourselves, or have to leave that to be done by some later historian of our Scottish fauna.

## EDENMOUTH AND THE LOWER TAY

The great wealth of bird-life at Edenmouth and off the shores of the sandy stretch of the Tents Muir north of the Eden, again bids fair to be a cheerful sight to the wandering ornithologist, notwithstanding the persecution they receive at the hands of the punt-shooters and "shore-poppers" of Dundee and St. Andrews. The land, too, was also severely raided in the nesting season by bands of bird-nesting boys who came across from the opposite side of Tay, and took all the eggs they could find upon the Tents Muir and shore-line. This has been greatly checked, and indeed almost entirely stopped, by the rigid supervision which followed the passing of the Bird Preservation Acts over the carefully defined area for which protection was drawn up for the County Council by Mr. William Berry in the initiatory working of the Acts soon after their first adoption. Great results have been achieved, and in similar cases there can be little doubt that the careful preservation of defined tracts of famous breeding quarters of colonies of our birds like those on Tents Muir is more likely to prove generally successful than indiscriminate application of the Acts to more extensive areas. It has been proved so in the past, and will again be proved to be the better plan in the future if adopted. This plan means results from the individual knowledge of such men as Mr. Berry who are in the best position to judge of local requirements. Not only are innumerable birds again nesting on this ground, but the results afford direct and great additions to the winter fauna; and something like a return to the condition of things, which even I can remember, is once more in progress.[1]

In December 1886 Mr. Evans witnessed vast congregations of Wild-fowl, and estimated the numbers rising from the shoals and mud-flats of the Eden, and going off to sea when disturbed, at from 800 to 1000 birds, including many Mallards, Goldeneyes, Scaup (about 30), one or two Pintails, a Merganser, 50 to 60 Shelducks, and one Goosander. Such sights are still common both upon these shores—in severe winters especially—and perhaps even more prominent in certain reaches of the estuary of the Forth. It is no exaggeration to speak of "clouds of Wild-fowl," or "the water black

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[1] The terms of the Order are :—

"Order by the Secretary for Scotland under the Wild Birds Protection Acts, 1880 to 1896, dated January 9, 1897. County of Fife."

(See Marchant and Walkin's *Wild Birds Protection Acts*, 1880-96, p. 149. London : R. H. Porter. 1897.)

"In pursuance of the powers conferred upon me by the Wild Birds Protection Act, 1894, and upon the application of the County Council of the County of Fife ; I, the right Honourable Alexander Hugh, Lord Balfour of Burleigh, Her Majesty's Secretary for Scotland, do hereby make the following Order to apply within the portion of the County of Fife known as Tentsmuir, and bounded as follows :—On the north by the Estuary of the Tay ; on the east by the German Ocean ; on the south by the Estuary of the Eden ; and on the west by a chain of ditches, part of which is known as Lundin Burn, and which forms a continuous line flowing both ways, into the Tay at Tayport, and into the Eden near Reres Farm, all as shown, delineated, and coloured red," etc.

The *present* application of the Acts is shown in an Appendix, *q.v.*

During the earlier years after the passing of the Acts for the preservation of Wild Birds, and whilst Sir George Trevelyan was Secretary for Scotland, I was requested—as an authority upon Scottish ornithology—to make suggestions as regards the several county lists. At first the request came from the head office. Afterwards, I was consulted by the county councillors of a number of Scottish counties, and their lists were sent to me for revision. Amongst the latter I may refer to those for Orkney and Shetland, Elgin, Sutherland, and my own county, Stirlingshire. At very considerable trouble and expenditure of time, and purely in the interests of our birds, I went into each case with care and deliberation, as no doubt could be verified if these papers are at all available to successors in Office. Using what knowledge I possessed of our native breeding species, whether these were migrants or residents, and what knowledge I had also of geographical distribution at home and abroad, I gave all the assistance in my power as requested. For example, I cut down the Shetland list from some 130 species—approximately—to twelve birds, which I considered it was really necessary to provide protection for, giving my reasons for or against these, as well as those which I excluded, some of which never bred in Shetland, nor are ever likely to do so, unless indeed we undergo a great glacial epoch again :—*e.g.* Sanderling, Knot, and some others equally with birds," etc., though, of course, these conditions depend greatly on the nature of the winter.

But not only is there vast bulk of Wild-fowl on the water, but also great store of Waders on the shores. At the same time Mr. Evans witnessed the above assemblage of Ducks, the mussel-scalps of Edenmouth below Guardbridge and lying off the end of the golf-course were packed with Oyster-catchers, and were reckoned by Mr. Evans to number over 1000. There were also Curlews in numbers, Bar-tailed Godwits (about two dozen), Grey Plover (about 20 or 30), Redshanks (100), and several hundreds of Dunlins.

Many of the Water-fowl were seen also below Balmanno; and on the occasion above instanced for midwinter, fifty-four species of birds were identified.

improbable, and from their names in some cases calculated to confuse the judges and thereby induce unnecessary expenses for expert evidence.

Then came the inevitable change of Government, *i.e.* from Radical to Conservative; and by changes instituted in the Scottish Office, all this well-considered work—as I feel entitled to claim it was—was pigeon-holed or cast aside, and a new boundary for the whole of Great Scotland and the lists of its protected birds was formed which cut the country into two by a line between the Firths of Forth and Clyde. Very fortunately, one most important exception was secured, however, and that was the Tents Muir; and as already said, ornithologists have to thank the county of Fife and its principal adviser, Mr. W. Berry, for perhaps the most successful and useful delimitation (resembling in no small degree a somewhat similar defined area, viz. that of Spurn Point in Yorkshire), and which was sent to Lord Balfour of Burleigh, the successor in the office of Scottish Secretary.

I cannot refrain from expressing my fixed opinion that the preservation of our rarest birds and others most requiring such preservation would be better served by such delimitations carefully thought out, than by attempting to preserve wholesale all areas and all species indiscriminately. If there was more delimitation of areas to be scheduled for protection, there would be less excuse for expenses, and also for ignorance of local magistrates and even of higher officials, which cause such wholly uncalled-for burdens upon the counties concerned. I wish we had more of these "sanctuaries," and less absurd generalisations and useless repetitions of long lists of species which are in no need at all of present preservation; and some of which indeed would be far better omitted altogether as worse vermin than much of what adorns the gamekeepers' larders. There are some species which have become the veriest vermin since they have been injudiciously protected, amongst which I have not the slightest hesitation in naming the Lesser Black-backed Gull and the Starling.

I am glad to add to the above the following appreciation of the present system, by Professor A. Newton, than whom no living ornithologist has a better right to express an opinion: "There is no greater absurdity than leaving it to County Councils to draw up lists of birds to be protected. That is why I do not interfere in any of their cases" (*in lit.*, Aug. 14, 1906).

In the earlier autumn, of course, the Waders would be in still stronger evidence.

The map of the Tents Muir District should also be consulted under Grouse, Sand-Grouse, and Terns, and some more species.

## MUGDRUM ISLAND.

Another interesting locality is Mugdrum Island, on the tidal portion of the river Tay. In order to obtain any definite idea of this favourite haunt of migratory birds, and as a haunt of innumerable Starlings, Tits, Rails, Rose-coloured Pastors, and other species as spoken of in the text, one must climb up above the town of Newburgh, to separate to the eye-view its outlines from the far shore of Forfar and the Carse of Gowrie. It is a long narrow island, with a wealthy-soiled farm upon it. It stretches up the tidal Tay for more than three miles, surrounded by a tide- or sea-wall; and between the wall and the tideway a vast fringe of reeds or bulrushes almost entirely surrounds it. To attempt to get any view of it from lower levels would result in failure, and bring out a meaningless mass of confused and commingled island and shore. It is highly cultivated ; as also are the famous pear- and apple-orchards of the slopes above Newburgh, and the reclaimed farm lands a little to the east of the town and in the vicinity of Lindores Abbey; and as also are the more distant wealthy-soiled lands of the Carse of Gowrie. The far channel of the Tay between Mugdrum Island and the coast of Forfar is shallow—though labelled a "deep" on the map—and in severe winters is often crowded with innumerable Wild-fowl of all kinds. The lands of Inchyre on the hill-tops and rolling fields on the Fife side are the haunt of companies of Grey Geese, especially one well-known field on that property which they haunt repeatedly. The salmon-pools, famous for their wealth of fish, are now taken over by the Perthshire Syndicate, and no netting is done beyond what is sufficient to maintain the right; and thereby the river-angling of the upper reaches of the Tay has already been vastly improved. Many references will be found in the text to this paradise of Wild-fowl and migrants.

## LOCH OF LINDORES[1]—FIFE.

The Loch of Lindores is a fine sheet of water lying among gently swelling and rounded uplands about two miles from Newburgh. It is shallow and abounds in pike. Several large patches of reeds and bulrushes occupy the end nearest to Newburgh, and round the only island and about the centre of the loch. It is the favourite haunt of Wild-fowl in winter, and of Great Crested Grebes, Coots, Waterhens, and Tufted Ducks in summer. On the occasion of my only visit to its shores—in 1905—I counted four pairs of the Great Crested Grebe on the water, not yet incubating on their nests among the reeds. This was about the end of May. Our illustration will give a very fair idea of its scenic abilities, as well as show its nature as a Wild-fowl haunt. Mrs. Corstorphine, of Inchyre Grange, kindly

LOCH OF LINDORES.

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[1] Mr. Maitland, of Lindores, kindly furnishes a list of Wild-fowl recognised as frequenting Loch Lindores. The following species are noted: Mallard, Teal, Goldeneye, Tufted Duck, Wigeon, Shelduck, Shoveller, Pochard, Dabchick, Great Crested Grebe, Waterhen, Coot; but Mr. Maitland believes his list to be far from complete (*in lit.*, 9th Nov. 1904). However, I sent the list to Mr. Evans to see if he could supplement it, but he returned it without any additions.

offered to obtain for me, later in the season, photographs of close views of the Grebes, because when out in their boat she often has the chance of seeing them at very close quarters after they have hatched off their young, when they are very tame and permit a near approach, but she has not been successful in obtaining this to date of going to press.

Loch Lindores is the main feeder to Tay below the junction of the Earn. The ownership of the loch is a curious and complicated affair. The ground and the fish and fowl of the loch belong to the property of Inchyre, along with a carriage-drive round the loch at low water. But the water is the property of a Mr. Watt, Dundee; and there were formerly mill-water rights at several points, *e.g.* Grange Farm, Glenburnie Saw-mill, Den Mill (meal), Craigmill, and a bone mill, etc. Now, however, only the saw-mill and Craigmill retain rights, and are the property of Mr. Speedie, of Messrs. Speedie, Perth.

## CRIEFF DISTRICT.

Passing over the lower flat lands of the haughs of the river Earn, I next select Crieff as a centre from which to survey the beautiful country of the south-west of the area and parts of the remoter glens.

### Lone Glen Artney.

The drive from Crieff to Glen Artney passes through that lovely scenery which is without rival of its kind in that loveliest county of Scotland, viz. Perthshire. On the occasion of our visit, we took the higher way, by twisty and narrow, but admirably kept, roads, through "hazel-shades" and wooded knolls, and past the northern base of the Torlum Hill. Along the roadsides we found fine avenues of old timber trees in stately rows—elm, ash, sycamore, larch, and pine, etc. Every here and there we gained peeps of the more distant mountains, and of the fertile haughs and meadows which fringe the banks of the river Earn between Comrie and

Crieff, and the junction of the three streams, the Lednock, the Earn, and the Ruchil; and far beyond, the rugged spurs which guard, as it were, the entrance to the glen of Artney and the portals of Loch Earn.

But there was nothing which struck us as distinctive enough from much other Perthshire scenery to warrant our expending time or negatives upon the general scenery. It was not till the higher reaches of lone Glen Artney opened out to our vision that we thought it necessary or expedient to do so. Arrived at the entrance gate below the lodge of Glen Artney, I sat down opposite the long and wild extension of the glen, or Strath-a-Glynne, which may indeed be looked upon as the very acme of "loneness" in the centre of the deer-forest. Mr. Norrie made nearer approaches, and at last was satisfied with three characteristic views of it. On a previous occasion I had tramped over the slack in the hills from St. Fillans to fish the Ruchil Water from Dalclathic Bridge for sea-trout in the harvest-time—and that was accomplished with fair success—and I could even at this long lapse of time identify the route by which I came. It passed through the large enclosed ground which is now devoted to a fine herd of hill-ponies and cattle belonging to Mr. Cairns, of Dalcruin, and also harbours some introduced stags for future advantage to the forest, which is closely adjoining. On our way back, Mr. Norrie secured a fine photo of "lone Glen Artney's hazel-shades," in a view taken above Dalcruin and a little above Dalclathic Bridge. We returned, after resting the horses, by the lower road through Comrie, and by the main road between Crieff and Comrie, continuing through similarly lovely scenery and luxuriant foliage. The weather was simply magnificent; and there was none of the cold east wind which we were so soon to experience before our travail was over. Many birds were noted—some thirty species. What struck me as most remarkable was the abundance of House-Martins and Swifts, the scarcity of Missel-Thrushes, the early appearance of two Spotted Flycatchers near Comrie. (I saw scarcely half a dozen afterwards in all our wanderings—right on to June 10.) The Martins and Swifts had penetrated far up among the very highest reaches of Glen Artney, but Swallows were, on the other hand, distinctly scarce. The Cuckoo also was most demonstrative—and this was the case in all the western glens of

Perthshire which we had occasion to visit this season.[1] This was, as we afterwards had opportunity of knowing, in direct opposition to our experiences in the east; but during the latter portion of our tour, the weather changed for the worse, and we experienced bitterly cold north-east and east winds for weeks up to and after my return home about the 10th June. This extreme cold is simply a continuance of the reigning weather which we have had in spring and summer now for the last four years *at least*. And I feel considerable certainty that this long continuance has had most direct effect upon much of our bird-life in several directions. Indeed, we experienced what might almost be described as a short Arctic summer.

To illustrate the general avi-fauna of the south-west glens around Crieff, I give here a list of the birds observed during one day's drive from Crieff to Glen Artney on the 17th May 1905. This list was made without leaving the driving road :—

Song-Thrush.
Missel-Thrush (not common).
Blackbird.
Wheatear (scarcer than usual).
Hedge-Sparrow.
Robin.
Willow-Warbler.
Chaffinch.
Wren.
Pied Wagtail.
Jackdaw.
Rook.
Lapwing.
Meadow-Pipit.
Tree-Pipit (two singing).
Sparrow.
Starling.
Cuckoo (common).
Spotted Flycatcher (two near Comrie).
Skylark (not common).
Yellow-hammer.
Wood-Pigeon.
Curlew.
Redshank.
Sand-Martin (scarce).
House-Martin (very abundant).
Swallow (not very abundant).
Whinchat (one near Comrie).
Partridge.
Grouse.
Coot.
Canada Goose (Loch Ochtertyre).
Black-headed Gull (ditto).
Swan (ditto).
Swift (very abundant).

[1] Later in the summer and early autumn, however, considerable increase of several species was taken note of, as will be seen under species.

## GLEN TURRET.

Of Glen Turret I have little to say, except that it has ornithological interest in the fact that Golden Eagles bred there within the years of my remembrance, and in an alternative eyrie somewhat further west. Individuals of the king of birds are also seen occasionally frequenting the side of Loch Turret at the present time. One remained many days within sight of the keeper's house at Loch Turret, and persistently perched upon a huge boulder which lies at the lochside, and is known locally as "The Highlandman's Stone." Ben-y-Hone (or Ben Chonzie) rears his great head at the upper confines of the glen, and a long, level-topped, adjacent mountain tells the trained ornithologist's eye that its appearance suggests almost typical amenities for the nesting of one of our scarcer British birds, viz. the Common Dotterel (see p. 302, where I give a truly typical view of a Dotterel-haunted mountain). We took photographs of this place, and also of the falls of Turret and Balvreck, which we passed on our way returning to Crieff. In the forenoon of the same day, Mr. Norrie secured some nice views of Drummond Castle and the lochs, with the mass of Torlum towering above with its now denuded scalp. *Bare Hill* is the meaning of its Gaelic name. But it was planted long ago, and became—at least so we may or may not credit from our guide-books—"the highest wooded hill in Scotland"; then came retribution for the vaunt, for in the great Tay Bridge gale of 1879 it was almost swept bare, and so again resumed its natural character, and now, with the exception of straggling remnants of hundred-year-old pines, it is *bare* indeed. Torlum is visible from afar off, often silhouetted dark against the higher mountains behind and beyond, and may be recognised from the main line of railway from Stirling to Perth.

## THE SMA' GLEN.

I have little also to say regarding this well-known haunt of the tourist. It is all lovely, as all things are in the scenery of TAY; but it cannot be quoted as containing anything of special interest in direct touch with my text. Mr. Norrie took several successful views of the Glen and small bits of beauty, every one of which would make charming illustrations for the ends or beginnings of chapters—head-pieces and tail-pieces *ad infinitum.* My difficulty lies in the wealth of subjects and in the *selection of the fittest.* We passed Trinity College, Glen Almond—where in my school-time I was one of our Merchiston School Eleven which played the Trinity College Eleven; and I can remember the peculiar cricket-field we played upon, perched as it was on the summit of a steep hill, the top of which had been sliced off and levelled for the purpose. But the fielding of long-leg and cover-point was sometimes—to use an expressive Americanism —"indeed a caution." I could, in passing on our drive in 1905, only see the fringe of pine-wood which surrounds the cricket-field on three sides, and the spires and higher roofs of the college itself. But one bright episode came under notice—a lovely pair of Goldfinches flew accommodatingly along the hedgeside before our horses, and then crossed our path and flew into a belt of hard-woods by the roadside. *I was pleased,* because many though the years have been that I have searched for our Scottish birds, of almost no species of our indigenous birds have I seen so few in all other parts of Scotland. I had been told before of their presence in this district, and this added another point of interest to my seeing them myself. The remainder of our drive was along a straight and dusty and rather uninteresting road by the Carse-side to Crieff.

## GLEN DOCHART.

On the 20th May we pursued our route by the newly opened railway line along the north side of Loch Earn; and from Balquhidder Station went on to Tyndrum for the purpose of getting photographs of the old Black Wood, which represents the farthest point of advance of the Capercaillie to the west inside the limits of our area, and of the patch of similar forest near Crianlarich where the first Capercaillie of the advancing host was shot, as I have already illustrated in my monographic account of that species.[1]

On a later date, having made previous arrangements for trap and boat on Loch Dochart, photographs were obtained of the several rocks on the north-west side of the loch, where Mr. Symington Grieve discovered the large colonies of Daubenton's Bat, and also one of the old Castle, which has been recently exploited by Mrs. Place of Glendochart House.[1]

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[1] *The Capercaillie in Scotland,* etc.

I do not use space here for any description of Glen Dochart, as it is too well known to require that; nor do I enlarge upon the scenery of Loch Earn and the line of new railway by its side, because that will soon be the common property of every tourist—at least to admire from the railway-carriage windows.

Nor does it seem necessary or desirable to occupy space with a description of Loch Tay around Killin, where I had the pleasure of again meeting Mr. Duncan Dewar, the oldest living gamekeeper in the service of the Duke, who only retired from his charge at Remony last May (1904), and who now still pursues his favourite hobby—stuffing birds and other wild things—and who lives close to Killin. Mr. Dewar kindly consented to having his likeness taken by Mr. Norrie, which I was well pleased to obtain. Notes of the birds which I saw in his second collection—he having parted with his first and principal collection to the County Museum in Perth—will be found alluded to under several species.[2]

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[1] By the kindness of Mrs. Place, whom I had the pleasure of meeting a few days later at Fortingall, I have received an interesting MS. account, written by herself, of the discoveries made by her party there during the last ten or twelve years, illustrated by drawings by her son of the articles found—relics which are now safely housed and in her possession. These discoveries include the unearthing of a "bottle-dungeon" and a cell, a flagstone with a coat-of-arms, old iron-barred sash of a window, and quite a number of other remains. The paper, it is intended, will appear in the *Proc. of the Antiquaries of Scotland.*

[2] Mr. Dewar is well known to Perthshire naturalists. He served for two years at Taymouth, 1854-6; sixteen years at Mornish, 1856-72; and thirty-two years at Remony, 1872-1904—or in all, a service on the Breadalbane estates of some fifty years. During that period he accounted for about 4200 head of "Vermin," exclusive of Crows and Jackdaws, which would, he tells me, "probably amount to about 5000, as I was annually destroying about 800 eggs." He has served all his life on the estates, and has never worked for any other master.

## GLEN LOCHY.

Of the scenery of this fine Perthshire valley I have nothing special to chronicle beyond an illustration of its general characteristics. A few Capercaillies frequent the steep slopes covered with suitable woods on the north and east bank. At the keeper's house in upper Glen Lochy we saw upon his hoarding Stoats and Weasels, Hoodie Crows and Jackdaws, heads of Lesser Black-backed Gulls, one Heron and one Buzzard, and four Foxes' skins. Badgers have been included amongst others of these trophies within the last few years and up to date of 1906. Mr. Norrie took several views of the fine waterfalls of the Lochy.

Of the scenery of a much-belauded high-lying lochlet on the road between Killin and Glen Lyon I can only say that we were much disappointed, and it was not worth the time expended upon it, nor the long stiff climb for two horses and waggonette, in which the said horses had to walk the entire distance from the junction of the cross road with the main road along the north side of Loch Tay. Nor did we view the famous grape-vine at the house of Achmore, often referred to in the tourist guide-books.

It was at this stage of our journeyings that the weather changed for the worse, and cold east winds with driving mists obscured the higher tops from our view. From this time onward well into June the air was bitterly cold and sunshine was dispelled.

The Tay steamer took us down to Kenmore, and thence we drove to Fortingall.

Now, throughout the whole of the time we spent in this south-west portion of Tay in 1905, birds were always with us in plenty, belonging to some thirty to forty species, of which I kept accurate lists. This abundance—at least of species, which might reasonably be expected to be met with in barer or more upland districts—continued through all the first half of our tour, but a lamentable falling-off took place later on, when the hitherto glorious weather lapsed once more into uncongenial east and north-east winds, and bitter cold. And then the decrease in visible bird-life became at once quite remarkable. Later in summer, however, their numbers appear to have recovered, so far as we can judge from the notes given to us by Mr. Evans, who spent some weeks in the later summer and early autumn in the Killin district.

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## GLEN LYON.

It was only after waiting somewhat wearily at Fortingall that at last we viewed the beauties of this "most beautiful of all the beautiful glens of Perthshire."

Should any one be—as I was—unacquainted with these beauties, he will first admire its lower reaches after leaving Strath Appin, the heights of Drummond Hill rising boldly upon the left, and the beauty-slopes of Garth more gently rising on the right, whilst the road follows up the broad lower courses of the river and haughs, shaded by almost continuous avenues of stately timber-growth—larch, elm, plane or sycamore, spruce, fir, and oak. The river flows through a rather rich alluvial or gravelly haugh-land to a little beyond Fortingall. Arrived there, there appears but little promise of superlative beauty—though it is all beautiful—as the wide plain opens out more widely still; but only one short mile further on the road bends away suddenly to the right, and with startling suddenness a wild gorge and narrowly-contracted valley opens like a very "gate of the glen" before us. Around Fortingall the hills are low and rounded, and a wide opening leads across to Loch Tay by the Fearnan road—grassy sheep-slopes and rather featureless, stunted, heather-clad braes make the above sudden changes in the aspects of the middle and upper glen all the more like a transformation scene. A long, rugged ridge crosses the upper portion of the circular flat above Fortingall, and stops abruptly, seeming almost to jam up against the higher rampart of hills which form the portal of the glen on the north side, and from which point the road follows the direction of the run of the river. Suddenly—as said—at this point on the road, and where it turns quickly from a northerly to a westerly direction, the first startling view of the beauties of Glen Lyon literally "burst" upon one's vision. Far below, and stretching for the distance of, say, half a mile, foams the turbulent river, hemmed in on either side by the hanging woods and rocky defile formed by the great portals of the glen. We saw it when the river was in half-flood from the rains of the past two days, but it must be grander far when the famous salmon-river rushes down in the full impetus of a vast "spate."

From this point the road follows a snaky course, though well graded and well cared for, like almost all the frequented roads in the county. For three or four miles we drove along an almost continuous avenue of grand old timber-trees to near Chesthill (pronounced Chessel). The road usually runs at a considerable height above the river, but now and then dips till it nearly touches the immediate river-bank. Through this grand gorge endless successions of salmon-pools, sparkling broken water or gleaming shallow, and flats of lovely trouting water, succeed one another, causing strange emotions to the experienced angler. I remember I was once strongly advised to fish this river for trout above Chesthill, but some other fairie-land of fishing led my steps elsewhere. And indeed, as I looked upon these waters for the first time, I could not repress the regretful feeling that I had missed my opportunity.

Above Chesthill once more the valley opens out in circular or oval shape, and fine fertile haughs again occupy the agricultural spaces between the guarding hills. Here Oystercatchers call and practise their fine aerial evolutions. At a point of the road there is a strikingly fine combination of scenery. The wide haugh at its upper extremity is again cut across by a barrier apparently of rugged ridge, and tors and heathery or coppice-covered "mealls." The river —ever lovely—with a birch and ash-clad islet, forms the immediate foreground, and numerous ridges and knolls and "mealls," and the high and steep glensides, give many points of intermediate distances and perspectives — all compressible into the canvas of a painter or the focus of a camera. A gleam of sunshine lights up the silvery stream as it battles onward through all its curves and beauty-settings. The intersecting ridge this forenoon really formed the middle distance, but when we returned down the valley in the evening we were obliged to be content with it as the limit of our vision, except for transient gleams of sunlight, or white, sun-spangled showers against a dark and gloomy cloud that obscured the further recesses of the upper glen.

From another *point d'appui*, looking *down* over the same stretch

THE PASS OF GLEN LYON.

from an elbow of the bank about two miles further up the glen, an almost equally fine view is obtainable, with the beginning of the gorge below Chesthill. Of this also we took a view.

We drove on all the way to Meggernie and to near the falls, and passed the Bridge of Balgie. The valley now for the greater part opens out again till the short gorge through which the rapids of Meggernie flow is reached. But the scenery continues to reward us, as seemingly endless successions of the great spurs of the main ranges of the hills protrude towards the river-course, and present a wonderful series of perspectives. We entered the fine avenue of lime-trees which leads through the policies of Meggernie Castle, and viewed the grand old mansion, dating back to about the year 1550. The so-called falls form rather a series of foaming rapids, but none the less do they deserve the praise bestowed upon them by Mr. Geen, who describes them during high flood as the perfect impersonation of grandeur, and well worth a long rough walk to see.[1]

Of the mountain-tops we saw but little, as mist hung heavily over the summits of Meall Garve on the north, and its accompanying satellite Meall Deraig, or the Red Hill; and of Ben Lawers on the south we only caught one or two ghostly apparitions through the gaps in the cloud-land. But the height and near proximity of the wall-like superintending ranges on either side of the valley can—I fancy—seldom permit of any extensive views beyond.[2]

But the half-shrouded projecting spurs far up the higher glen of Lyon made wondrously fine perspectives,—some strange and fantastic in their semi-obscured outlines, and we felt recompensed for our endeavours nevertheless.

There are three main exits from the glen, all being diverted not far from one another. These are the driving road across to Killin, past the lonely, high-lying Loch a Lairige in the summit pass; the bridle-pass to Dall in Rannoch; and the footpath which leads through the summit-levels between Loch Lyon and Bridge of Orchy on the West Highland line of railway. It was along this latter route in ancient times that the Robertsons garrisoned the hill forts in upper Glen Lyon to defeat the inroads of the Macdonalds of the Isles when they raided into the lands of Old Atholl. And these forts, or rather their remains, are still to be seen, testifying to the warlike conditions which prevailed in the olden times.

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[1] Mr. Philip Geen, author of *What I have Seen while Fishing, and How I have Caught my Fish* (London, 1905), and angler, who usually visits Fortingall for the spring fishing.

[2] Meall Garve bears another name as viewed from the Rannoch side, viz. "Scoupa"—where long "bleaching-cloths of deep snow" lie far into the summer, and giant screes trundle their débris down the slopes. The poetic Gaelic name of Scoupa means "The Whirling," and the burn and glen flowing to the north of it in equal descriptive poesy is "The Glen of the Great Snow Drifts" (*Alt ghleann a cruach nan schneadaidh*), or, "The Burn of the Glen of the Cup of Snow."

We took our lunch near the falls of Meggernie, and then returned from the valley pleased, yet not fully satisfied. Nevertheless, I trust our views may be none the less effective, even should they leave out something behind and beyond for others yet to describe.

Having no very important work to do further in these parts of Perthshire, we now went on from Kenmore to Perth city. There we took up our quarters for a few days, and visited some places of interest in our survey.

While I inspected the birds in the Museum—not, however, for the first time—Mr. Norrie went to Blairgowrie, and by the kind permission of Sir Charles Clarke Rattray, and the assistance of his butler, he obtained some fine views of the deep gorge of the river Ericht at Craighall, and the exact position of the nesting-place of a pair of Stock-Doves which were amongst the earliest to be recorded in Tay, and which I refer to at greater length in the text.

On another day, somewhat later on, I went carefully over the collection in the Museum of nests and eggs of birds found breeding in the district, and another day was occupied in a visit to Newburgh-on-Tay and to Loch Lindores, as has already been spoken of.

## NORTH AND NORTH-WEST TAY.

### Rannoch.

I need not describe the drive. It is already well known to every tourist. I passed much that I used to know of old—Faskally, Bonskeid, and Tummel Lodge; and saw the tops of Farragon peeping up behind the latter grouse-moors. On three previous occasions I had shot White Hares on these tops of Farragon, twice from the south side on the Killiechassie and Cluny shootings, and once from Tummel Lodge. I was pleased to hear that the old keeper, M'Beth, was still alive and hale and hearty. Our driver knew all about the countryside, as he had driven the mails to and from Rannoch for twenty or more years. We passed Dunalastair, but the house cannot be seen from the road. It was purchased by an old neighbour of mine some years ago—Mr. Buntine, late Chairman of the Caledonian Railway. A lovely place it is, hanging over the rapids of the rushing river in the glen below, where the Tummel river gains perhaps its greatest velocity at any point of its course. The new mansion-house of Newton, close to the highroad, as we passed was all lighted up by electric light obtained from a dynamo driven by turbine from the level of the higher rapids. Schiehallion had his cowl on, but doffed it to us for one brief period just as we passed Dunalastair, and we saw his majesty towering up from the grouse-moors which lie between his feet and the river.

It was late at night when we drove up to the hospitable Dunalastair Hotel.

During our sojourn in TAY Rannoch contributed some interesting work. Unable myself to scramble far or high, I armed Mr. Norrie with the necessary instructions, obtained a local guide who knew all the "ins and outs" of the hills, being as he is a lad who accompanies the sportsmen in the season, on hill and coverts; provided a trap to take them a part of the way, and pointed out the snow-beleaguered northern slopes of Scoupa—or as it is known in Glen Lyon, Meall Garve. "Forward! Excelsior!" and they started upon a good five-mile climb. Four plates were exposed—two whole, and two half-plates—of the snow-wreaths, and the bulging screes below where the Snow-Buntings breed. The nest was found in 1903—the farthest south recorded locality, so far, in Scotland. (The mapping out of the distribution of its nesting haunts can now be very generally indicated for the whole of Scotland.)

Mr. Norrie described the "screes" of Scoupa as limited in extent as compared with many others we are acquainted with, as for instance in Sutherlandshire or the West Highlands. Nor do the screes of Scoupa lie below the snow-corries at a straight angle, but rather appear to bulge outwards, more like a great "haunch" or shoulder. The snow-slopes filling the concave corries however are, for the most part, long, steady, straight slopes; and beneath them Mr. Norrie found ice formed which took him some trouble to break.

After leaving the trap, he and his guide mounted at once upwards in order to get above the deep gashes of many side-burns which ran into the main glen almost at right angles—these being the tributaries of the Alt na Corrie Cruach Schneideadh, which flows from the sides of Scoupa. A fine distant view of the mass of Scoupa was obtained as, a few days later, we drove over the high summit-level on the road between Kinloch and Struan, and Mr. Norrie was able clearly to point out the exact nesting ground of the Buntings, as distinctly shown to him by his guide, and which was very accurately indicated on a tracing on the survey-map by my first informant, Mr. Norman Kinnear, who possesses the single egg taken in 1903.

After two impossible days of wet and wind, but still upon a far from promising morning—the 3rd of June—I gave up all idea of fishing the loch, and hired a trap to drive with Mr. Norrie round Loch Rannoch, and to visit Loch Eigheach (pronounced Each). We came to Camusericht, where Mr. Godfrey found the Crossbills nesting in 1903, and there refreshed our horses with meal and water, and ourselves with potash water and accompanying liquid! Then drove on past Rannoch Lodge and shooting-lodge to Loch Eigheach, the long-since-deserted breeding haunt of the Red-necked Phalarope and the present haunt of Wigeons, and about the southern limit of the nesting range at the present time of the Greenshank, which haunts, in the nesting season, the wild stone-cropped ground behind Rannoch Lodge. The wind and north-west rains were bitter and perishingly cold, and we had to wait a weary hour to get a desired photograph of Loch Eigheach. Gladly then we turned our backs on its drear inhospitality, and returned by the south road alongside Loch Rannoch. Another attempt to get a decent view of the Black Wood of Rannoch failed, as the wind blew with increased vehemence, and the cold rain—from which no good shelter could be found—fairly beat us off after another weary waiting. Vainly we had waited for a "rift in the dense blackness above the *lift*." Next day Mr. Norrie, under scarcely brighter auspices, managed to take a few views. One is taken from the round, birch-clad knobbie where, in 1874, I twice had a male Hobby pass close overhead, when shooting the covers of Crosscraig.

SCHIEHALLION, FROM THE SNOW-DRIFTS OF MHEALL GARBH.

## The Drumouchter Mountains.

Our next object after leaving Rannoch was to obtain views of the great main range of the mountains which guard the pass of Drumouchter on the west side. In order to do this at the least expenditure of time, we took train from Struan to Dalnaspidal Station on the Highland Railway.

From a point above the old highroad—over which I had driven before the railway was made—we got successful views of the two gigantic and clumsy hills known as the Boar of Badenoch, and the Atholl Sow; and between them the long level ridge of the table-topped plateau which stretches back from the eastern peak or brow of Marcaonich, and which I have named in my illustration under the species "A Typical Dotterel Mountain."

Marcaonich has an almost perfectly level top as seen from our position, but the platform really slopes very gently westward; then about half a mile from the western end it gradually dips again. On the right, as viewed from the same position, is the long rising shoulder which forms the easiest side of approach from the shooting-lodge of Drumouchter. It was by this approach that Colonel Feilden and I ascended on the day we took the Dotterel's eggs.

There is another but very different view of Marcaonich from Drumouchter. From this point the characteristic long ridge of the plateau is not seen, but only the eastern nose and the great scree, and the shallow corrie immediately beneath the summit, to-day filled with snow-wreaths.

I have in illustrating it, therefore, preferred to show the ridge of the plateau as a typical Dotterel mountain. A heavy, long-stretching wreath of snow lay all along below the ridge above the great screes which drain their winter floods to the Tay. I could just see that a similar wreath or wreaths also filled the corrie of the north-east end. A smaller patch lay on a lower shoulder which drains to Spey by the waters of the Truim.

## CENTRAL TAY.

### Loch Ordie.

Having a permit from the Duke of Atholl to visit this old haunt of the Ospreys—as referred to in the text—I drove through the private grounds of the estate behind Dunkeld and Craig-y-Barns, and by a circuitous route visited first the Loch of the Lowes. Our route twisted and twined round rugged knolls and tree-clad or treeless knobbies, past the shooting-lodge of Reimore and lands of Cardney. At Reimore we obtained the key of the gates which give entrance to the further extension of the way to Loch Ordie. The day was still and dark, and cold and threatening, and but few small birds were in evidence along our route.

During the whole drive, which occupied some three or four hours, only a few straggling pairs of Missel-Thrushes were seen, a few Pied Wagtails and the ever-present Chaffinch, a few Willow-Warblers, and a solitary Robin here and there. On the Loch of the Lowes there were a good many Tufted Ducks and Coots, and a pack of Black-headed Gulls were busily feeding upon water-insects in the shallows among the reed-beds. On Loch Ordie only a few pairs of Wild Ducks were visible, and the Common Sandpiper flitted along the shore.

I got the keeper, resident at the side of Loch Ordie, to come further with us and point out the exact spot where the spruce-tree which contained the Osprey's nest was, and where the stump of it remains in evidence. And I got him to rehearse the sad tale of their annihilation, which, in almost every particular, verified the previous accounts which I had received. It was undoubtedly Atholl Macgregor who counselled that the whole tree be cut down. On him rests that responsibility. Loch Ordie gave me the impression of a perfect and lone residence for the Osprey; the loch contains good-sized trout suitable for their maintenance, and I saw these rising over the still and windless surface.

After obtaining several careful views of the deserted site and its surroundings, we drove on by a different return-route over very holey (and unholy!) roads, which twisted round the numerous hills and swung with rapid turnings on a very steep grade by the base of Craig-y-Barns; and so to Dunkeld, in time to lunch and catch the train for Pitlochry. I was much indebted on this day—as also in many other instances—to Mr. A. M. Rodger, of the Perth Museum, who accompanied us, and who had visited this Osprey site only a few weeks previously.

From Pitlochry I hired on to Kinloch Rannoch—a long but always lovely road—some twenty-two miles.

## STRATHBRAAN.

I was formerly in some degree acquainted with the higher parts of this valley, but that is so long ago now that I scarcely feel justified in speaking of it from memory only, and as I was only there in the shooting season, I prefer to give the following notes upon the authority of one who is well acquainted with its avifauna.

Mr. Charles Mackintosh, ex-letter-carrier through Strathbraan, and a native of the glen, at my request reported to me upon a four days' special survey, during which time he was asked to take notes of the comparative numbers seen of some twenty-six of the commoner species. This he did, and I have analysed these notes, and offer them here as a contribution which—with a few others from other localities given separately—may serve to illustrate the avifauna of a typical Central Perthshire valley below and on the skirts of the heather zone.[1]

The dates of his surveys on my behalf were 6th, 7th, and 13th June, and the 13th July 1905. On the latter date he had to deal with young birds, and records what he saw in "broods," but I have reduced these in counting to *one of the parents* in order to assimilate them to the earlier lists.

Mr. Mackintosh had hoped also to take another day above Amulree, but this was not accomplished. However, as that part is for the most of its area above the wooded zone, and in that of the heather zone and higher, the omission does not affect the usefulness of the earlier lists.

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[1] Mr. Mackintosh is a careful and accurate observer, and during a considerable part of his life has traversed Strathbraan as regular letter-carrier, now retired. His identifications may be relied upon as correct. He sent me other notes of a more general character relating to a wider area and including much of the country around Dunkeld. These, where necessary, I will make mention of in the body of the *catalogue raisonné*.

In these four days he traversed the glen up one side and down the other from Inver, his residence, at the foot of the Braan, to Amulree—covering some twenty-six miles in all of walking and observing.

From the analysis it appears that the species seen were as follows in the order of their abundance:—

Willow-Warblers, 136.
Lapwings, 103.
Chaffinches, 99.
Blackbirds, 68.
Cuckoos, 43.
Yellowhammers, 30.
Meadow Pipits, 30.
Larks, 22.
Common Sandpipers, 22.
Whitethroats, 21.
Song-Thrushes, 18.
Curlews, 17.
Redshanks, 16.
Tree-Pipits, 8.
Whinchats, 7.
Wheatears, 5.
Corncrakes, 4.
Greenfinches, 4.
Common Wrens, 4.
Missel-Thrushes, 2.
Sedge-Warbler, 1.
Redstart, 0.
Wood-Warblers, 8.
Pied Wagtails, 15.
Grey Wagtail, 1.

It will be observed how scarce some species proved to be even in this sheltered valley of Strathbraan. Mr. Mackintosh noted a few more birds: Wild Duck (1), Moorhen (1), Snipe (1), Sand-Martins (two colonies), Martins (numerous), Swallows (numerous), but no Swifts, which is curious, seeing how abundant they appeared to be in other parts this year. He did not count Sparrows, and they were seen at all villages and farms. Starlings were all over the glen. He adds: "The Wood-Warbler and the Tree-Pipit may be about Kinloch House, that being the only likely place in the upper part of the glen." Of Dippers he saw two young ones only.

## MEIKLEOUR.

As a further illustration of the wealth of some of the more favoured localities in Perthshire, I give here a list of species seen by Her Grace the Duchess of Bedford at Meikleour, during a few hours' watching on the 25th April 1905. Though there is nothing uncommon, the variety is considerable. These are as follows:—

Missel-Thrush.
Song-Thrush.
Blackbird.
Wheatear.
Redstart.
Robin.
Willow-Warbler.
Hedge-Sparrow.
Great Tit.
Blue Tit.
Wren.
Pied Wagtail.
Grey Wagtail.
Meadow-Pipit.
Sand-Martin.
Greenfinch.
Goldfinch.
Sparrow.
Chaffinch.
Lesser Redpoll.
Bullfinch.
Corn-Bunting.
Yellow Bunting.
Starling.
Jackdaw.
Rook.
Skylark.
Mallard.
Teal.
Wigeon.
Tufted Duck.
Goldeneye.
Goosander.
Ring-Dove.
Stock-Dove.
Pheasant.
Partridge.
Moorhen.
Coot.
Ringed Plover.
Golden Plover (over 100).
Lapwing.
Oystercatcher.
Snipe.
Common Sandpiper.
Redshank.
Curlew.
Black-headed Gull.
Herring Gull.
Lesser Black-backed Gull.
Great Crested Grebe.
Golden-crested Wren.
Pochard.
Shoveller.

Some fifty-four species came under her observation.

The position of Meikleour will be found by consulting the Ordnance Survey Map—one inch to the mile, sheet 48.

## STRATHMORE.

### Rescobie Loch and Loch of Forfar.

Our next move was on to Forfar *viâ* Perth.

Up to this time, and since leaving Glen Lyon, or indeed since leaving Killin, the scarcity of bird-life visible has been most remarkable, due to continuous cold winds and general want of sunlight. Indeed, the weather forms an almost exact parallel in its unseasonableness to that we have experienced during the past three or four years in spring and summer. I will not enlarge upon it here further than to say that some effects upon bird-life are perfectly noticeable to any practised eye, and perhaps some of these may be realised when I come to speak of the species themselves.

It was only a three-mile drive to the Loch of Rescobie. We went by the wrong road first, as we had failed to direct the driver aright. However, we had plenty of time, and it gave me an opportunity of seeing the place to greater advantage. After driving along the road which passes close to the north side for a distance of about one mile, we turned, and then took a cross-road and passed under the railway bridge; and then turning to the left along the Arbroath highway, came close up to the railway, and to the very spot where I had several times seen the Great Crested Grebes within "biscuit-throw" of the railway. Again, to-day, to my pleasant surprise, I saw the male bird; and Mr. Norrie, as he went through the single field which separates the highroad from the railway and the loch, which latter almost laves the embankment at this point, also saw both cock and hen. Mr. Norrie secured several photographs of the loch and patches of reeds, in one of which without doubt the birds have been accustomed to have their nest. Amongst other birds seen on Loch Rescobie I made out two pairs of Shovellers, and Coots and Waterhens; but it carries many other wild-fowl at times, while the long marshes and semi-flooded meadows are great haunts of Snipe. Returning by the straight road—the main Arbroath road—we drove through the town of Forfar to the Loch of Forfar, which lies close to the west end of the town, and took one general photograph of it including the buildings of the outskirts of the town. The Loch of Forfar is another shallow, weedy sheet of water, from which it has long been customary to dredge marl. There are many nasty deep and said to be dangerous holes thus formed, and at one place a series of long stakes had been driven into the bottom where formerly much marl had been taken. Upon the tops of these stakes Cormorants often perch, and remain there motionless for hours, notwithstanding the close proximity of inhabited houses on the near shore. There were none there, however, to-day, but I saw several pairs of Shovellers and one pair of Mallards.

There are one or two more shallow lochs not far from Forfar with very similar characteristics, and I do not consider it necessary to dwell upon these at length, nor beyond such mention as may be made about them in our list.

I am indebted to the Rev. Mr. M'Connochie, of Guthrie parish, for a very careful and excellent list of the birds he has met with, or knows to have been found within the district. It takes the form of an annotated copy of the recent handbook to the Museum, which I sent with additional notes and interleaves. His annotated list contains notes on one hundred and twenty-four species.

### AUCHENBLAE.

Having accomplished all that was considered necessary in this neighbourhood—at least so far as known to me—we went on to Fordoun, where a trap met us and took us to Auchenblae, and the first thing I did was to call upon Mr. J. Milne,[1] whose name appears so often as an authority on the local avifauna for a distance of some ten miles around that centre. He obligingly agreed to accompany us on the morrow in a drive up Drumtochty Glen and to Glensaugh Loch.

This was accomplished on the 7th June, and Mr. Milne pointed out many of the objects and localities of interest in my special quest—such as the glen where Rough-legged Buzzards halt at times on migration; the small glen where the Great Spotted Woodpeckers remained so long resident in 1904—though as yet they do not appear to have bred there; a Redstart's nesting place—a rare bird here—and other places of interest. Loch Glensaugh was frequented by a pair of Wigeons which reared their young for the first time in 1904.[2] Many pairs of Mallards nest there upon the islands of the artificial loch; and some fourteen Canada Geese have long been inhabitants. The single occurrence which has been reported of an Osprey at Loch Glensaugh, however, requires verification; indeed it is locally and currently believed it was "just a big Gull." The loch contains Loch Leven Trout—introduced, of course—and also Brown Trout. It is rather a pretty little sheet of water, well worthy of the expenditure of a plate, though the heavy and bitter wind from the east rendered it difficult to get justice done to it from the constant swaying to and fro of the trees. The same cause militated against our success with other views.

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[1] Mr. Milne was an old correspondent of the late Col. Drummond Hay, and he began writing to me (first letter is dated 20th March 1895); and since that time he has reported continuously from his immediate and native district his daily observations. Accompanying his first letter (see above) was a note-book, with all his observations up to date, since Col. Drummond Hay's death. His notes after this will be quoted under his name and date. I first met Mr. Milne at Auchenblae station at 3.33 P.M. on a Friday in June 1897.

[2] But have since increased. See Appendix.

After an inspection of Mr. Milne's collection of eggs and birds, and his beautiful wood-carving, at which he is an adept, we pursued our way to Arbroath.

## THE RED HEAD AND COAST-LINE OF FORFAR.

On the 8th June we drove to South Mains Farm, and thence Mr. Norrie followed the coast-line to Red Head—which is the seaward extremity of the extension of the Sidlaw Hills—and secured a few views of the coast scenery of this portion of the Forfar seaboard. There is not much to describe unless one were better acquainted with matters of local interest than I am; therefore I do not attempt it. There is a resting place of the Great Cormorant on a pinnacle of outstanding rock, but I am not aware of any nesting place of these birds anywhere upon the east coast of Scotland, and certainly none within our present area. The shore between Auchmithie and Arbroath is much honeycombed by caves entering above the present sea-level, and at many parts there is an accumulation of drift and débris along the cliff-foot, with a superintending scree or slope often clothed with rank vegetation, and it is, I understand, a paradise for the botanist, but of its details in this respect I cannot speak. In this way it differs from most of the seabraes with which I have been acquainted, and even presents contrasts with the adjoining coast-lines of the next county to the north, viz. Kincardineshire, as perhaps may be gathered from the illustration given of Muchalls, between Stonehaven and Aberdeen; and, again, that provided by Mr. George Sim in his *Fauna of Dee*, of Fowls' Heugh, the principal "rookery" of sea-fowl upon our east coast. At Red Head there are a few pairs of Guillemots nesting, as I am assured by Dr. T. F. Dewar, who visited the locality lately, and informed me that he saw somewhere about a dozen pairs of breeding birds and their eggs. During the course of our drive we passed through the demesnes of Ethie, the seat of the Earl of Southesk, and found the timber-growth to be quite extensive, and of considerable importance, as compared with woods and forests in other parts along the east coast of Scotland. Undoubtedly this is due to the fact that the plantations have been formed in sufficiently broad and extensive areas to protect each other from the prevailing salt-laden sea-breezes. Even where narrower belts are in evidence, the general influence of the shelter of the rest has been beneficial. Quite well-formed and almost stately timber-trees are formed over the extensive enclosures of woodland, and some very fine old elms and beech, and other hard-woods surround the immediate neighbourhood of the mansion-house at Ethie. That the timber runs to money may be gathered from the fact that a judicious thinning out has lately taken place, in which the well-grown birches—as evidenced by the diameters of the remaining stumps—have been cut down, without interfering with the amenities of the rest of the timber tract. Evidences of really good forestry strike the eye of one in some measure a student of forestry whilst driving through the grounds. The lovely forestry of the more favoured districts through which I have lately passed—especially those of south-west Perthshire—only emphasised the care which appeared to me to have been expended in less favoured parts of our extensive area, as certainly illustrated by those woodlands of Ethie. I think these would—or ought to—teach a lesson to many as to how to make the most of disadvantageous circumstances in the treatment of our Scottish woodlands. I mention these matters in connection with my own more immediate subject—the distribution of our Scottish birds, and the shelter afforded to our migrants, and the inducements offered to them to tarry on reaching land after their "sore travail o'er the waste of waters." Nor is evidence awanting that such shelter is accorded and taken advantage of, as may be perhaps gathered from a study of the details under the species (especially see Missel-Thrush).

Of the remaining coast-lines of Forfar I have little to say, as I have only passed them in the railway train between Dundee and Carnoustie, and can only speak vaguely of their attractions for birds. There are the sands and links of Buddon and Barry, where Terns and Sheldrakes still breed, notwithstanding the persecution they are subjected to from the inhabitants of a populous neighbourhood. Still there are items of interest to be found in the sequence of bird-life even here; and were these links and sands as well looked after as those on the other side of the estuary of Tay, there might easily be a great reformation effected; and in such matters, ornithologists can only hope that the Natural History Societies and other *really educational Institutes* will pay more attention to the matter in the future than they have done in the past, or apparently are doing in the present. Much experience has taught that insistence on such matters is apt to defeat the object, and that if a first application proves of no avail, subsequent ones only accentuate or increase the natural atrophy and pachydermatous condition of the subjects whom it is desired to influence for good. Therefore I will not apply the "embrocation" further, and only express the reasonable hope that SOMETHING WILL BE DONE here and in many other populous places.

# DEFINITION OF THE AREA.

The whole area at present under treatment, within its encircling rim of inland mountains, and between them and the coast-line, contains some 3250 square miles.[1]

The sea-coast extends, with a general N.E. to S.W. trend, between Girdleness, in the extreme N.E. of the area, to Fifeness in the S.E.

The inland boundaries form a sinuous ridge of mountainous elevation throughout the greater portion of its course of about 330 miles, measured by means of a planimeter.

The greatest diameter from N.E. to S.W. is approximately 100 miles in a straight line; from E. to W. 90 miles; and from N. to S. 40 miles.

The parent stream is the Tay, which, with its many larger and smaller tributaries, drains into the sea at Dundee. The remainder of the total drains directly into the North Sea by the rivers of

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[1] The Tay Basin and Strathmore contain exactly 3270 square miles, or 2,092,800 acres; or, if reduced to still more minute subdivisions, 15,826,800 square yards. The correct landward boundary is 329 miles in extent. The correct coast-line measures 82 miles: add for the sinuosities of estuaries 67 miles, and a total is reached of 478 miles. The above careful measurements are certified to by Mr. D. Gibson, Ordained Land-Surveyor and Certificated Measurer, as calculated from Bartholomew's reduced map from the Survey of half a mile to the inch, worked out by triangulation. These measurements include those portions of other counties such as Fife—besides Perth, Forfar, and Kincardine—which lie within the area, and are exclusive of such portions of these counties which lie outside the presently treated of "Faunal area." After triangulation these measurements were tested and proved by planimeter, also by Mr. Gibson, to whom I here desire to record my full appreciation of, and thanks for, his trouble and time expended upon the same, as well as other work he has done for me.

Col. Drummond Hay recognised as correct limits and boundaries of the area, "all the drainage area between Fifeness and the southern half of Kincardineshire" (*in lit.*, 20th January 1888). As will be seen above, I have slightly departed from this as regards the northern boundary, and gone up along the coast-line so as to include the point at Girdleness and the drainage which flows into the North Sea southwards of that promontory.

Kincardineshire and Forfarshire, principal amongst which are the two Esks—North and South; and in Fifeshire by the river Eden.

The whole area, as I will again point out, may be described as roughly of a pear-shape, with the narrow portion, or root of the stalk, at Girdleness, and the greater part of the remainder bounded, as already indicated, by the Great Fault formed by the continuous range of the Grampian Mountains.

Now, the line of the Great Geological Fault can most correctly be termed the divide between the faunal areas of DEE on the north and a small part of MORAY, and that of TAY on the south. TAY includes the red alluvial tract of Strathmore, which was at one time the site of the Great Caledonian Lake which stretched continuously right across Scotland, and which has in later sequence of geological change been filled in and silted up above the sea-level by the denudation from the hills and upheaval of the coast.

The whole TAY BASIN therefore, and the wide Strathmore, include in a natural topography and fauna the entire seacoast, with its bays and cliff-heights, between the point at Girdleness and the true watershed of the south bank of the lower Tay—*i.e.* to the low ridge which separates it on the south from FORTH—and all the inland portions which drain into Tay and between these coast headlands. And this includes that small portion which forms the narrow end of the pear, and which lies between Girdleness and Stonehaven, and which is considered by me to form a portion of a natural faunal area.

Although I have not personally inspected the whole of the extensive sky-line, nor all of the coast, I have seen the most of the latter, and I believe my general knowledge of the geography of Scotland enables me to place these statements with sufficient accuracy for the practical purposes of a faunal volume.

As I have pointed out, the long and wide depression of the land which occupies the site of the ancient Caledonian Lake stretches at much lower levels across the country immediately to the south of the divide—a rich alluvial tract with wealth of agricultural value, if any agricultural value now exists. The altitude of the watershed between the lower flow of the rivers which run through this great plain to the North Sea and those which find their way to the Tay is only a very few feet, and may be taken at a point upon the main line of railway near Forfar. As the site of the ancient Caledonian

Lake reached at the time of its existence through the portals at Perth city, between the extensions of the Sidlaw Hills on the one side and those of the Ochil range on the other side of the river Tay, and thence across or along the carselands of the lower Earn, and so through the Vale of Menteith in FORTH to CLYDE; and because the land now occupying that ancient lake has such a low elevation above the present sea-level,—because of this it might be argued that a much more extensive faunal area is thereby formed, and parts of FORTH and even CLYDE should be included, but I cannot see that any good result or real service would ensue were I to follow this plan.

In a similar way the areas of FORTH and CLYDE might be united, and perhaps with greater justice. The altitude of the minor watersheds of FORTH and CLYDE reach only 120 feet between the headwaters of the Bonny—tributary to Forth—and of the Kelvin of Clyde drainage area, while on the north side of the Ochils and again in the Vale of Menteith the altitudes are even less. But this comparison is only mentioned in passing, and with the idea of instituting a comparison, and does not call for further treatment in this place.

Returning to the TAY area, we find that the minor range of the Sidlaw Hills is only an isolated patch, both sides of which contribute their drainages to the river Tay, and the extension to the eastward runs out on the coast in the minor headland of the Red Head in Forfarshire, at an elevation above the tide of some 200 feet. At the time of the existence of the ancient Caledonian Lake, the Sidlaw Hills must have formed a true island, and at the present day they cannot be held to have greatly increased in any faunal value they had, but have maintained a very similar position.

I do not pursue this part of my subject further here, because I believe the definition of the Tay Basin will have become sufficiently evident in the descriptive chapters already given.

# FAUNAL AREA AND ITS POSITION.

The area—if a small scale map be consulted—as already said, may be described as pear-shaped. The apex or stalk of the pear and conical portion expands inland from Girdleness. The outline follows the rim of the Grampian range on the N.E., N.N.W., W., and S.W., and turns round by the south as far as Crieff; but the further extension runs out through much lower elevations along the crests of the eastern Ochils and the Lomond Hills of Fife, and by the almost flat lands of the Howe of Fife to the Fifeness, the coasts north-eastwards to Girdleness completing the fanciful outline of a pear.

The coast-line, it is true, presents little or no formidable barrier to the migration-flow of birds; but the trend of the coast-line being from a north-easterly direction to a south-westerly direction, offers no prominent catchment to pull up the migratory flocks, nor does it offer special inducement to them to deviate from their previous course, if that course runs from north-east to south-west, as has been stated it does.

Now, the estuary of the Tay is narrower than that of its sister estuary of Forth to the south, and it seems to me that these two sister areas merge the one into the other, rendering it not quite easy to assign to each its due share of influence in arresting or receiving the bulk of the migration streams which reach our coasts, whether the due direction of these flights be normally from north-east to south-west, or more directly from east to west—a settlement of which question does not appear to me to be by any means decided.

Thus the Bell Rock appears to me to hold an intermediate position of importance between TAY and FORTH, just according to the general trend of the usual streams of migration. I believe Bell Rock may be a resting place or a lead to both, but I am inclined to think that it has more influence in favour of FORTH than of TAY. I have already referred to this in a previous page.

The interior or bulging portion of the pear-shaped area as described, forms with its high elevations a cul-de-sac of much more topographical importance. Thus, except where the low levels run between Strathmore and the drainage of the river Tay, and again where the lower reaches of Tay lead by insignificant and slightly defined watersheds to the Vales of Allen and Menteith in Forth and to the Clyde area, it forms a definite barrier between TAY and DEE and the other areas to the north and west. Also, eastward of the Lomond Hills, there is little to divert the flow to FORTH over the open and wide Howe of Fife.

As for the more isolated ranges of comparatively low elevations presented by the Sidlaw Hills in Forfar and the Ochil Hills in Fife, these offer some slight resistance as a wedge, just as the central hills of Stirlingshire tend to split up the migratory birdflights which pass on towards CLYDE.

To what extent these interruptions may influence migration-flights may not yet be perfectly clear, and we may well await the further developments which no doubt will appear when FORTH comes to be fully treated of, and when a careful consideration has been made of the comparative flows of migrants at Bell Rock and the Isle of May, the latter being undoubtedly accepted as "The Key of the Forth," whilst the former holds—to my present view—only a doubtful or intermediate position, though prominent in itself as a "house of call" for either or for both. These and similar questions will no doubt receive solution before long. Mr. W. Evans, who has devoted much thought to the FORTH area, and is alive to the importance of the Isle of May as a resort or rendezvous of migrants, will no doubt help greatly to clear up any uncertainty still existing in such matters. Meanwhile Bell Rock may remain as an isolated position of influence, and during the present stage of inquiry has been left for separate treatment. Just as no part of the Forfar coast, and no part of the coasts north of the Tay estuary as far as Girdleness, can be said to present a true "catchment" for migrants in any great or prominent quantities, in the same way TAY fails to receive so large a share of our usual migrants as FORTH does. Especially must this appear in evidence, if the main trend of the flights is—as has been stated—from the north-east towards the south-west, and not from more direct east to west. But even if the flights are more from east to west—*as I have observed them to be during three weeks spent on the Isle of May in October* 1884, *and that in all winds*—even then, owing to the flatness and featureless configuration of the land south of the Tay estuary, TAY can scarcely claim to be so great a "receiver" as FORTH, because the former is not so wide.

Hence my difficulty in placing a definite value upon the Bell Rock as a "stepping-stone" or "resting place" of migrants from oversea.

The Isle of May appears to me a more likely position for many reasons to "catch up" migrants, whether the main drift come from the north-east in a broad wave or a "compressed fan," and then turn when still at sea, or come on a more direct course from east to west right across the North Sea. But the fact remains that all arrivals seen by me and the late Mr. George Patterson during a three weeks' study of the migration there in October 1884, stream in over the South Ness of the island, and none were seen to arrive from any other direction; and they always came in their broadest phalanxes when the wind was east or south of east, and "under their tails"; and at these times they also came with greatest force.[1] It may well remain for the intelligent reader and student of migration to arrive at conclusions as to which route is the dominant one when he comes to consider the accumulations of facts brought together in the following *catalogue raisonné,* as well as a study of our remarks in the previous volumes of this series. Not having had access to the original schedules returned from the Bell Rock for a number of years, I have been unable to quote these in this connection. Without some correct appreciation of the *numbers* of the different species observed at certain dates, I find it is quite impossible to arrive at definite conclusions beyond what I have already indicated.

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[1] It has been argued that should an observer stationed in the lantern-room of a lighthouse hear a bird strike heavily upon the outside of the dome, say on the south-east side, it cannot be decided whether the bird came full force and full flight, or had circled first, and come back, like Ducks alighting breast to wind. But I doubt that being essentially a difficulty. (See under Woodcock, *infra,* as an example of my meaning.) I incline to a different opinion.

# THE PROCESS OF DISPERSAL, AND CLIMATE AND CHANGES.

Coming now to the progress made by advancing species. I have elsewhere expressed the opinion that such advances are often dependent upon the acquaintance made by these species of the countries over which they have been accustomed to pass, first during an autumn migration, and next upon a return spring passage. This result may, however, be only after repeated experiences—it may be after only a long series of years—but in the case of others there may be a much more rapid development.

I have also argued that not until certain occupied areas—whether oversea, or in the more restricted areas of our island of Great Britain—have become congested, will such developments take place.

I have also hinted that temporary—or even in some cases permanent—shifting of breeding grounds may take place, due to abnormal change in meteorological conditions, especially should such continue for a series of seasons in succession.

But there is another cause within our own country which I think is of a somewhat different nature. That, I believe, is simply the first stage of congestion of certain species which ornithologists have been accustomed to look upon as resident species, but which from their local haunts becoming filled up press away in any direction of least resistance—let me say, in a northward direction. Such species could hardly be considered to have made prior acquaintance with suitable localities, because they had not migrated by these new routes before. They simply "flew outwards" because the area hitherto sufficient to hold their numbers, could hold their increase no longer.

Lines of so-called "least resistance" may be selected from several causes. The influence may be initiated by the conformation of the land, or other topographical peculiarities favourable to the well-being of a species. Or the lines of least resistance may be influenced by temperature either of a temporary or a more permanent character; or in the case of birds which come to our country from great distances—from Scandinavia and the continental areas of their distribution—a line of greatest resistance, and, *per contra*, a line of least resistance, may be caused by lower or higher currents of wind, or other meteorological phenomena taking place either at the time of their departure on the migratory movement, or occurring during the actual passage across sea. Yet another influence may be found simply in the fact that, after being driven out from the area of first occupation by the aforesaid congestion, the various species may have utterly failed to find suitable haunts along the new line of departure. This of course—if my views are correct—would be most noticeable among such species as ornithologists have been accustomed to consider resident in our country, because, as I have tried to explain, they would have less experience, or have acquired less knowledge of these new lands than truly migratory species would have done, or be less affected thereby.

It may at once be asked: "Why, then, is it that such species as the Fieldfare and the Redwing and the Brambling, and many others, which have been known to visit and revisit our country for a very long period of time, have never taken up their summer home here?" Perhaps that may be answered: The areas occupied, say in Scandinavia and the Continent, are not yet congested, and it may even take many more years before they are.

Somewhere Seebohm has written the remark—I write from memory — that the climate of Scotland is really Arctic in character in midsummer—*i.e.* that the isothermal line of 60° at mid-July, or slightly under that temperature, passes through Scotland; and that this accounts satisfactorily for the far-southerly range of such species in the breeding season as the Snow-Bunting, Ptarmigan, Red-necked Phalarope, Whimbrel, Greenshank, Great Skua, Black-throated Diver, and Fulmar Petrel, and others, as well as several species of Ducks which are really Arctic breeding species, and for their extension further south in Britain than on the Continent. However that may be, I think that the land-temperatures over even so small an insular area as Scotland are assuredly influenced by the presence of the Gulf Stream, as also are the breeding quarters of several species along the north coast of Norway and further to the east, so far as its influence can affect the coast-lines of these regions. For instance, the Red-necked Phalarope has lately been ascertained to nest in Ireland, but how long ago it did so there appears to be no records to show.

No doubt there are ranges of temperature right and left of isothermal lines, between which extremes alone certain forms of vegetable and insect (or bird ?) life can flourish, or exist at all. And for present purposes let us confine our inquiry to such conditions at midsummer.

If such life be so regulated by temperatures: if vegetable life influences insect life, if insect life influences bird life, then I think some degree of difficulty may be considered removed as regards the distribution of our birds in the nesting season, and through our summer.

And if this so far be granted, may it not be equally well argued that if any abnormal conditions take place such as were patent to the eye of sense during the springs and summers of the last few years in Scotland—say during the springs and summers of 1902 to 1906 inclusive (in 1905 certainly up to the 20th of June)—that certain other abnormal conditions might (I hold *did*) appear in the temporary—or it may be permanent ?—dispersal of certain species ? If this be granted, then the facts point to a decidedly retrograde condition of our temperatures in midsummer, and a corresponding advance southwards of certain species hitherto accustomed to seek certain levels of temperature, whether their range included the shore-lines of the north of Europe or the 2750-feet levels of our mountain ranges—such species, for instance, as the Snow-Bunting and the Dotterel.

Such retrograde movements in the birds themselves may be easily watched in what we are accustomed to call sub-Arctic countries, and that no more distinctly than at the time of migration in spring. I have myself witnessed this in a manner beyond dispute at the great bend of the river Petchora, and if I read it aright the explanation seemed simple enough.

I have instanced the "crushing-down"—which I claim provisionally is a just appellation—of Woodcocks at their nesting grounds in 1902 and 1904 to areas south of the Grampian ranges in Scotland, facts regarding which, I claim, are fully substantiated; and I ask, how otherwise can such sudden change be accounted for? I have been answered, privately, by the apparently simple counter-statement that this was all due to the natural increase and congestion of the species in question at further north sites.

Very good; I accept that, but scarcely as a mere alternative. Rather would I assign it to direct cause and effect, and not accept them as separate factors. Congestion *may* have taken place, I grant; but all the more therefore, I think, would an overflow be likely to take place along those lines which would offer the least resistance, whether purely from temperatural causes, or from these and others combined.

If this view be adopted, how many other species might—or might not—be similarly affected, or affected similarly on perhaps slightly divergent issues? I believe I have evidence of many more.

Whether these views may gain acceptance I do not know; but I would ask that more attention be paid to them by field-observers, and may I hope, from our meteorological offices; and that they may even obtain some little appreciation from our museum authorities, who are endeavouring to locate the birthplaces of innumerable varieties or "sub-species," by a study of the vast accumulations of correctly authenticated specimens under their charge.

It appears to me to be a pity—I hope I may be misinformed—that *dry- and wet-bulb records* do not yet attain to a place amongst the true sciences unless they are accompanied by other outdoor and parallel observations. I think this has been greatly neglected in the past by our expensive meteorological societies—at least so far as any systematised effort has been made. Such absence of systematised effort in the past seems to have rendered any beginning in inquiries regarding migration and dispersal and distribution of life a great deal more difficult than it might have been. But—as the saying is—there is little good to be found in crying over spilt milk (and money) now. Many individual efforts have been made, but these have almost always been sporadic or interrupted, and no attempt —with any success—has been inaugurated and carried out by which systematic work could be overtaken by our meteorological associations as a whole. When saying this, I distinctly refer to our British meteorological institutions, and I judge, in saying so, from an apparent absolute blank in their records as regards such natural phenomena as are connected with the movements of birds. They have not taken up the lead given by the British Association, nor the example given by other countries, nor has any attempt been made on any systematised plan to follow the labours of individuals.

I do not ask my readers to accept these remarks as efficient in solving problems of migration ; I only try to suggest means—amongst others—to that end. Therefore I say : Suppose that there be any truth in my remarks, and if it is right to say that temperature and other attendant phenomena influence life whether vegetable or animal, at the time of the productive seasons, is it absurd to take into any consideration the further possibility that the same life is also affected at all other seasons ? True, all the details necessary are not to hand to do so, and may not be so till Doomsday ; but it is not quite truly philosophical to fold our hands and even discourage attempts to pierce the veil, nor to remain tied to old prejudice and *dry- and wet-bulbology.*

I adhere to the belief—I think, expressed before—that migration, dispersal, and consequent distribution of species, are closely connected with one another as depending upon meteorological phenomena affecting the food, health, and general life of animals, and especially pointing to our birds at the present time as an example of its working.

I do not intend here to enlarge upon climate and changes as affecting the present area under discussion, but only desire to draw attention to the fact that there are many reflections among our old references regarding a changed condition of things in climate and weather, scattered up and down, for instance, in the long series of the "Agricultural Surveys" of the different counties, which deserve at least attention, though the meteorological societies were not then in existence. Both the old *Statistical Account* and the *New Statistical Account* deserve some consideration—much more, I fancy, than has been accorded to these old local records by writers of the present time. There are other sources too from which items might be culled, with direct advantage to the historical aspects of our climate and times. Let me also say that I believe most may be learned by observation in *abnormal seasons,* when such are carefully compared with the greater majority which present only normal conditions. One instance only I give, but not from any poverty of these, viz.: surely it is of historic meteorological interest to know, or remember, that in 1743 Patrick Murray of Ochtertyre had his haycrop all saved by the 15th May (old style), and at the same time six pints of ripe strawberries were placed upon his table, which were raised in his open garden. The exact date was the 29th May. Such observations are still worthy of remembrance and record and of imitation in A.D. 1905. And indeed there is a good opening for a properly instituted inquiry into all such phenomena by a properly constituted Committee or Department—not necessarily a Royal Commission, which is costly and often too transient, except in some cases, to divulge ideal results —unless indeed the scattering of much cash, some of which does stick somewhere, be a genuine and good result.

I can well believe that the investigation lately initiated and now being carried out by the "International Committee for the Investigation of the North Sea" will result in valuable additions to our actual scientific knowledge of the movements (migrations) of fishes —as, for instance, of the various forms of the herring, not to speak here of many other species. And if as yet these investigations are in an embryonic stage, and the discoveries not yet fixed quantities, the beginnings already evidenced in the Reports of the Committee show that a good deal has already been accomplished. It may be at least temporarily accepted that these movements or migrations of (say) herrings of several forms (species) or races, are dependent to a large extent upon hydrographical conditions; or, in other words, that the hydrographical conditions of the North Sea, in conjunction with the flow and ebb of the Atlantic currents, give the clue *to*, or dominate, these migrations.

But I do not in this place propose to enlarge upon this question of the migration of fishes and the interdependence of these with hydrographical conditions and alterations. I speak of them here only to illustrate that these hydrographical investigations and various observations which for years back have been carried out—regarding sea-temperatures at varying depths, degrees of salinity, and directions and force and annual variations in the surface-flow of the Gulf Stream, and the normal and abnormal occurrence of the southerly drift of icebergs, and other natural phenomena—have yielded results. I mention these matters to introduce the suggestion that if fishes are influenced directly by that class of phenomena, then other migrants, such as *birds*, may likewise be influenced—and probably are—by various phenomena connected with aerial and meteorological variations. I desire to point a way along which some future investigation may be directed as relating to the mysteries of bird-migration. Because it appears to me that many years' investigation at lighthouses and land-stations, and inland records, have not yet added greatly to our true fixed knowledge of bird-migration. A much more elaborate and perfected system of meteorological research, not merely confined to high and low level stations, or to "wet and dry bulbology," within the limited area of Great Britain, but extended over the whole east and west and north and south, land and sea communications, of the Old and New Worlds, with their outlying Arctic and Polar islands and continents, *must be* undertaken—if at all—internationally, and upon a uniform and scientific basis. Not merely will it in future be sufficient to continue the ordinary observations of our present-day great meteorological societies, but the very A B C of the observation of natural phenomena must be more systematically and carefully recorded. Indeed, the truly scientific examples set to us by such "old-world" authorities as White of Selborne, and others of much more ancient date than he, ought to be no longer neglected.

I may add that I have not studied an article by Professor Otto Petterson of Bremen, though my attention had been drawn to it by Professor D'Arcy Thompson in connection with some questions I asked him regarding the soundings in the North Sea and the movements of herring, which he refers to in the Blue Book.

It is *pitiable* to read in a newspaper report that in A.D. 1906 (June 27, 1906) a proposal is made in Parliament to discontinue British participation in further investigation of the International Committee.

Professor D'Arcy Thompson writes to me (26th Jan. 1905):—

"Now, whatever be the cause, whether it be local winds, or more probably some far-off pulsation, there is no doubt that we have in the North Sea a periodic ebb and flow of the Atlantic or Gulf Stream water, the ebb being in autumn. But the trouble is that there are many races of herring (as Heincke has so well shown, and several of which are pretty familiar to us); and while it is still very probable that hydrographical conditions are the clue to their wandering, yet these hydrographical conditions probably differ for each particular case, and the whole accordingly forms a tangled skein very much more difficult to unravel than we began by thinking it."

Without going into further details, which can only be looked upon at this stage as greatly theoretical, I desire to add one more remark, and that is: There arises the possible argument that from season to season variation in the direction of the curves and general positions of these means of the isothermal lines occur, and may—and possibly does—take place over Europe and over the whole east-to-west expanse of the Old World. Such movements or occupations may be only temporary, or of greater permanence according to the duration of phenomenal circumstances, such as I have endeavoured to show have taken place during 1902 to 1905. No doubt such circumstances may be accentuated by a natural congestion of any species in any given area, and the surplusage being forced to seek new ground. Perhaps illustrative of this congestion in a particularly "fit" and rapidly increasing species may be instanced the lately acquired habit of the Starling of nesting among the branches of thickly-planted spruce firs in some portions of their range—a habit at least deserving of mention. This fact has been *prominently* brought before me by more than one correspondent *for the first time* in 1905; and conspicuously by Mr. J. Milne's most careful and excellent observations at Auchenblae (*in lit.*, May 26, 1905), and *viva voce* when I visited him there after that date.

Other illustrations I have before given in previous volumes of this series. See Woodcock, Dotterel, etc., under species.

Now, although this may, and to some does, appear self-evident, nevertheless the whole subject is too obscure, for want of real scientific and accurate record, to afford positive data in our present inquiries. What degrees of influence, thus caused, affect—*as they surely must affect in some measure*—the health and distribution, and even the migration of life, must still remain a mystery, until some more systematic combination of our sciences and practice be inaugurated. But if such a plan could be so inaugurated, there might at least be some hope of solutions to some of the puzzles which exercise both our ornithologists and our meteorologists. If all could not thereby be cleared up, some step in advance would surely be assured, and as in all such inquiries, some new "rung in the ladder" be discovered as an upward stepping-place.

Now—May 21, 1906—to date, as these sheets are going through the press, our late spring and "early summer" is again sub-Arctic almost in conditions. If what we read in the daily press can be credited at all, the references to the ice in the Atlantic and the "reverse of the direction of the main flow of the Gulf Stream" are sufficiently disquieting. But whether these reports be true or not, the facts remain that there are conditions at present holding throughout the British Isles which warrant some belief in their veracity, apart from the other actual scientific records and facts which are (or have been) afforded by the U.S. monthly ice-charts of *past* years and the logs of ocean-going Atlantic vessels. At all events, I desire in this place to draw attention to these statements in continuation of remarks I have before made in my last volume of this series, under the chapter headed "Climate and Time" in the introduction, and also especially under the article "Woodcock" in the body of that volume; and to invite the attention of *careful* readers also to a few facts which I give again under the same species, especially Woodcock, in *this* volume. These statements may be considered by each reader for himself. For my part, I shall be delighted to have them scientifically confuted, as, so long as I do live in Great Britain, I prefer a more temperate climate to be indicated by the thermometer.

Without greater experience, I may well hesitate to enter in where "angels fear to tread," but surely there is something worthy of study by those who have the opportunities of doing so, and of these extraordinary seasons we have lately experienced. With some such belief, I have consulted one who *is better able to express what I mean than I can pretend to be myself.* The following, which I quote from a letter received from Mr. Stephen Burrows, of date June 22, 1906, may prove of interest to some readers. He writes:—

"The accumulated weight of snow and ice at the South Pole causes an alteration of the centre of gravity, or a change of the axis of the earth. This might change the ocean currents, including the Gulf Stream. Icebergs also appearing in the Atlantic would change the climate of the British Isles. I think it was about three or four years ago that icebergs had thus affected the climate.[1] Mount Pelée, Vesuvius, and Fusiama are in about the same latitude. The tropic of Cancer runs along this line. The weak line is slightly to the north of the tropic of Cancer. The crust of the earth shrinking from cooling, opens fissures through which the waters enter. Steam is generated, and this sudden expansion causes earthquakes and eruptions of volcanoes. The Italian papers stated during the Vesuvian eruption that the sea at Barletto fell two feet, and the same was noticed at Naples—about two feet of a fall. We may conjecture that millions of tons of water had got into the bowels of the earth, and according to Sir Hiram Maxim the steam would extend to far-distant places, as it did to Formosa, San Francisco, and Hecla.

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[1] See my remarks under the same subject in the last volume of this series, dating 1904.—J. A. H.-B.

"The waters of the Mediterranean are getting deeper and the Alps higher. This is the general tendency, according to Professor Geikie.

"Like a concertina the folds get deeper as it is pressed close, the ridges higher. Stromboli, a volcanic island near Sicily, and Isalco in Central America, are always active: Vesuvius and Fusiama are intermittent volcanoes. Etna and Vesuvius in their earlier eruptions—before 79 A.D.—were cast up from the bed of the sea. The sea then retired from the great valley of the Po. Italy and Sicily had then acquired their present extent.

"A remarkable upheaval took place two years ago in the Bay of Naples: fish were cast ashore by the sea, and this was accompanied by a storm of wind. On a Sunday morning about the same time the atmosphere became heated and lurid, and a thick haze appeared that afternoon; the 'blood-shower,' as it was called, fell. This was probably from some upheaval in the Atlantic. Vesuvius was quiet at the time, and Sahara always sends sand of a tawny hue. Before the eruption of Vesuvius, about the middle of March 1906, an island near Palermo sank so low that the Italian Government had the 1000 convicts removed, and 200 others."

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## MAPS OF STARLING, TUFTED DUCK, AND LITTLE AUK'S DISPERSAL.

I wish shortly to draw attention to what may be called a new feature in this volume, or, if that be considered too grandiloquent a name for it, a new departure in illustration; or a suggestion of a new direction of inquiry, as an aid to the study of migration, dispersal, and distribution.

I mean the three outline maps I give under *Starling, Tufted Duck*, and *Little Auk*.

That of the Starling represents an *early* dispersal in Shetland, Orkney, the north coast of the mainland, and the Outer Hebrides, which indicates much the same route or "line of flight" as that followed by so many of our "birds as travellers" at the present day. The map also shows a very much *more recent* colonising, taking evidently an absolutely opposite direction, viz. from congestion in the south, and expansion northwards. This map therefore shows two distinctly different movements in dispersal of the same, or (?) closely related, races of Starlings,—one from the north and east (and possibly from Faroe also (?)), and one by purely increase and extension from the south. As far as carefully collected dates can guide us (and they seem to *me* sufficient) this map is deeply interesting.

In the map of the Tufted Ducks' nesting-dispersal, the advance is shown of a species coming for the most part from the south by simple increase, but suggesting also—from the peculiar circumstance that Caithness and FORTH hold the *oldest* as well as the most numerous tenancy of this species—suggesting, I say, *more* than merely a south-to-north direct increase, and something of a possible arrival from the east, along the two *very principal* routes which are followed by migrants at the present day—as I *long ago* pointed out and still maintain—viz. the Isle of May and the Pentland Firth. But it is strange, is it not, that the great open, gaping ≺ of the Moray Firth is not equally honoured by their earlier arrivals? The *Tufted Duck* seems a bird amongst Ducks of sluggish habit, and not a perfervid migrant. Once at a place, it seems inclined to remain, and the rushy, reedy lochs of Caithness seem *very easily indeed* to have arrested their (perhaps involuntary) migratory flight. Once arrived, they remained happy and stay-at-home. I only ask my readers, or rather such as really care to make a study of such matters, to consult also the continental distribution of the species, and see what the conclusions are which they may come to. I may frankly state. conclusions have been almost *forced* upon me, with ever-increasing conviction, since I first took up the subject of "Dispersal of Species," and I have tried to illustrate these convictions all through this series from first to last; and I have already gone back and tried to indicate the progress of my views in this opening chapter of the final volume.

The last of the maps illustrates Mr. Eagle Clarke's record of the invasion of *Little Auks.* These Arctic strangers have *not* been made happy, nor have they remained to dwell with us. The object of this illustrative map is both to show their *enforced flights* and greatest penetration at the lowest levels, and also to further illustrate what effect upon migrants (real migrants) similar circumstances of weather might, or do, produce.

The map of the Little Auk illustrates both the inroad of the species by certain routes, and in some degree also the bulking of migrants in FORTH, as compared with their arrivals and inland dispersal in TAY; and also the comparative power of these two catchment basins for receiving migrants; and it may perhaps suggest the comparative importance of the Bell Rock and Isle of May positions, which I speak of in the Introduction. The complete account of the irruption of Little Auks is given very fully and completely in Mr. W. Eagle Clarke's papers referred to in the text, p. 348.

The other two examples of the mapping of the breeding, dispersal, and migration of species will be found under the species respectively, and may be consulted generally under various other species *besides those they were specially designed to illustrate.*[1]

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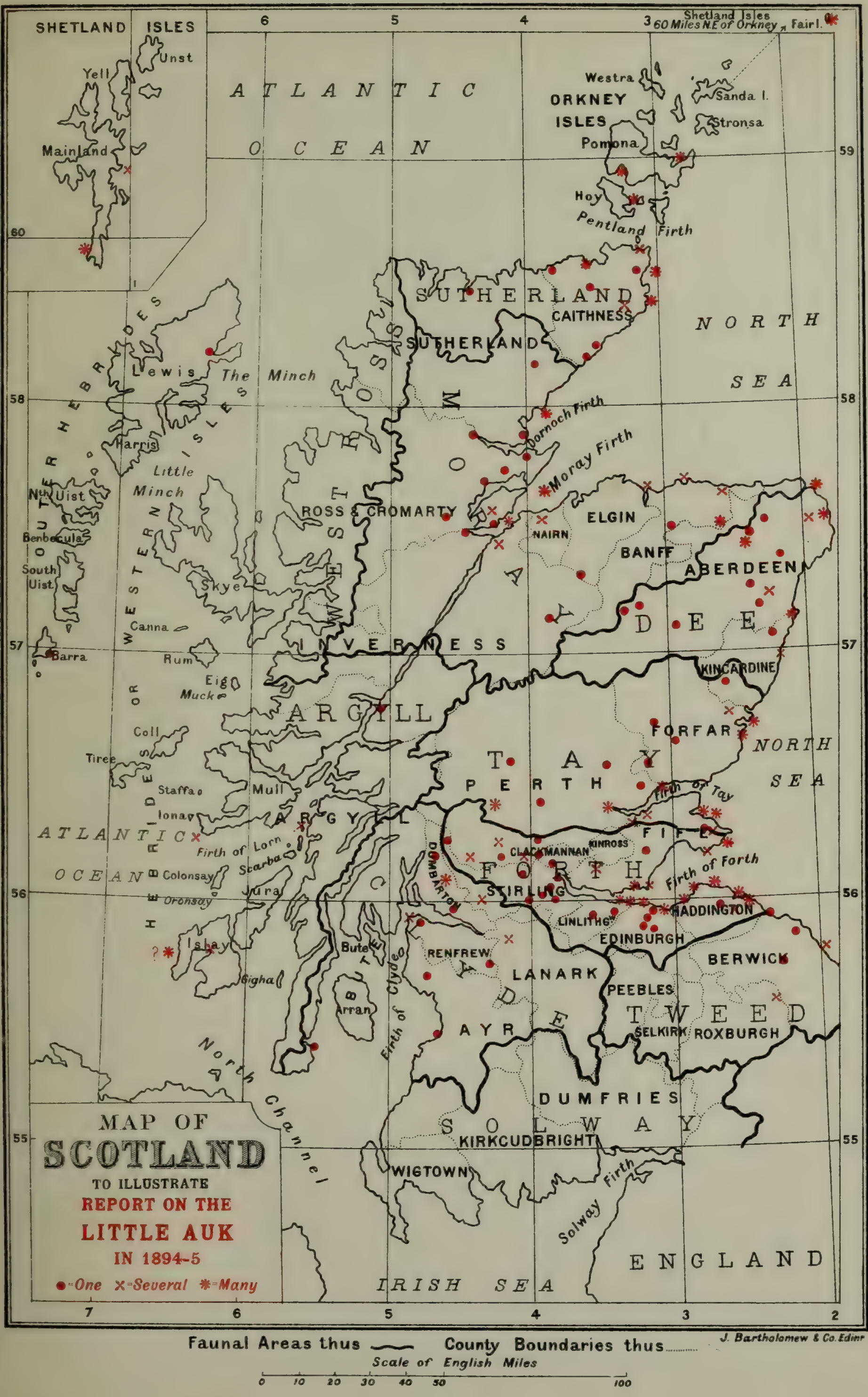
[1] In the maps of the dispersal of these three selected species the north-east limit or boundary of TAY is shown running out at Stonehaven. But, as I have explained, I have removed that boundary to a line more closely following the county march, and running out at Girdleness. (See general map of the area.)



MAP OF
**SCOTLAND**
TO ILLUSTRATE
REPORT ON THE
LITTLE AUK
IN 1894-5

● = One ✕ = Several ✱ = Many

SHETLAND ISLES
Unst
Yell
Mainland
60
Shetland Isles 60 Miles N.E. of Orkney
Fair I.
ATLANTIC OCEAN
Westra
ORKNEY ISLES
Sanda I.
Stronsa
Pomona
Hoy
Pentland Firth
SUTHERLAND
CAITHNESS
NORTH SEA
OUTER HEBRIDES
Lewis
The Minch
Harris
Little Minch
Nth. Uist
Benbecula
South Uist
Barra
WESTERN ISLES
Skye
Canna
Rum
Eig
Muck
Coll
Tiree
Staffa
Iona
Mull
HEBRIDES
Firth of Lorn
Scarba
Colonsay
Oronsay
Jura
Islay
Gigha
Bute
Arran
Firth of Clyde
North Channel
NORTH WEST
MORAY
ROSS & CROMARTY
Dornoch Firth
Moray Firth
ELGIN
NAIRN
BANFF
ABERDEEN
DEE
INVERNESS
ARGYLL
KINCARDINE
FORFAR
TAY
PERTH
Firth of Tay
FIFE
KINROSS
CLACKMANNAN
FORTH
DUMBARTON
STIRLING
Firth of Forth
HADDINGTON
LINLITHGOW
EDINBURGH
RENFREW
LANARK
CLYDE
AYR
PEEBLES
BERWICK
TWEED
SELKIRK
ROXBURGH
DUMFRIES
SOLWAY
KIRKCUDBRIGHT
WIGTOWN
Solway Firth
ENGLAND
IRISH SEA
7
6
5
4
3
2
59
58
57
56
55
Faunal Areas thus
County Boundaries thus
Scale of English Miles
0
10
20
30
40
50
100
J. Bartholomew & Co. Edinr.

# A FAUNA OF THE
# TAY BASIN AND STRATHMORE

# Class 1. MAMMALIA.

## Sub-class *MONODELPHIA.*

## Order **CHIROPTERA.**

### Sub-order *MICROCHIROPTERA.*

THE complete distribution of the Chiroptera still remains imperfect, and is deserving of the continued attention of naturalists. But perhaps the pages relating to this area are not quite so blank in this respect as are those which relate to some others of the faunal areas of Scotland.

Also, in how far the various species of Bats are migratory appears still to be uncertain. For instance, Daubenton's Bat certainly disappears from its summer haunts in early autumn or late summer, from the sides of Loch Dochart, and doubtless from others of its known haunts. Yet, common as it is now known to be, the winter haunts remain almost, if not quite, as unknown as before.

### Family **VESPERTILIONIDÆ.**

**Plecotus auritus** (*L.*). **Long-eared Bat.**

The distribution in TAY had not been thoroughly worked out at the time that Dr. Buchanan White gave his *List of the Mammals of Tay*, viz. in 1884, nor can it be said that a great deal more has been accomplished since.

There are several specimens, however, in the Perth Museum, and the following localities are assigned: An extensive "Battery," to coin a new word, was discovered by Mr. J. Milne of Auchenblae between the roof and the ceiling of the billiard-room at Drumtochty Castle. This colony was described by him as "hanging in clusters" in the usual way from the beams and rafters. Other localities are: Freeland (*Proc. Perth. Soc. Nat. Hist. and Science*, 1888, p. 179, *in mus.*); Mr. Norman B. Kinnear caught one specimen near the Bridge of Earn in August or September 1902; Forgandenny (2nd June 1884), and Seggieden, and Carse of Gowrie are quoted by the late Col. Drummond Hay (1884); Old Scone Road (*auct.* Master John

Renton); Murthly, Mr. Robert Lawson (13th January 1904); Crieff Road, Perth, Mr. Charles Masterton (4th June 1900). Also, Millais adds several localities, such as: "C. about Perth and Dunkeld; also Montrose, Bowershall (TAY), a colony." Millais notes the partial migration of this species (*British Mammals*, vol. i. p. 51, 1904).

### RHINOLOPHIDÆ.

[**Rhinolophus ferrum-equinum** (*Schreb.*). **Greater Horse-shoe Bat.**

An account of the capture of a single specimen of this species at Remony by Mr. Duncan Dewar, long time gamekeeper there, and a good bird-observer. I have not, however, been able to substantiate, as the specimen was not preserved. I can remember the occasion on which Mr. Dewar told Mr. Horn and myself of this, when my friend W. Horn and I walked over from Easter Shian, where we were shooting wild grouse in October. It was on the 14th of October 1879. A snowstorm was on, and we decided not to attempt to shoot that day, but instead we walked over to Remony, some six miles from our quarters and back. We inspected his fine collection of birds, and made a list of them on comparing notes when we got back to Easter Shian, and I find the list was preserved in my journals. Besides other matter, I find the note: "Rhinoceros Bat. This was found dead"; but that is all, and I have no recollection of seeing it, and only of Mr. Dewar having spoken of it, adding, "it was not fit to preserve." Of course such a record must needs stand alone in brackets.

Dr. Buchanan White, referring to this statement by Mr. Dewar, only speaks of the specimen as one of the Horse-shoe Bats, and as suspected on good grounds "to have occurred near Loch Tay"; but he continues, "as it is not known otherwise as a native of Scotland, and as no specimens have been preserved, I cannot admit it into this list at present." Millais makes no mention of either of the two species of Horse-shoe Bats on the Tay (*British Mammals*, vol. i. p. 33), and he quotes the late E. R. Alston's opinion of the uncertainty of the occurrence of the Lesser Horse-shoe Bat at Crookston Castle (FORTH)—v. *Fauna of Scotland*, 1880, p. 7. Of course my business is to draw attention to all records, whether accepted or refused, to save the time of such as may come after me.]

**Vesperugo noctula** (*Schreb.*). **Noctule.**

The only record for Scotland, so far as I am aware, is that sent to me by Mr. John G. Millais for the *Annals Scot. Nat. Hist.*, but which he also sent for recording in the *Field*, where it appeared in November number. (*Fide Zool.*, Nov. 15, 1904.) The late Mr. E. R. Alston, however, did not admit a record of this species upon the authority of the late Sir William Jardine in the *New Stat. Account of Dumfries* (*q. v.*, p. 175). The present specimen was shot and sent in the flesh to Mr. J. G. Millais on 15th October 1904. It was shot at or near Dalguise on Tay, and was a large female, and measured 14½ inches across the wings.

Mr. Charles Eversfield was the gentleman who secured it. It was decomposed when Millais got it, but he has preserved the skeleton for the Perth Museum. This record appears to have been too late for insertion in Mr. Millais' great work on *British Mammals* in its own place in vol. i., issued early in November 1904.

### Vesperugo pipistrellus (*Schreb.*). Pipistrelle.

Mr. James Milne remarks upon a curious feeding habit of a colony of this species which has possession of the roof and tower of the parish church of Auchenblae. He noticed how promptly these Bats pounced upon and soon devoured a lump of putty, which had been left by some workmen in the course of repairs in the tower. Mr. Milne continues: "All over the sill of the window and the floors their mouse-like droppings were thickly strewed. These seemed to be composed of pure whiting without any admixture of any other food, such as flies."

Another large colony exists at Glenbervie Mansion House—all identified as Pipistrelles. They have their domicile under the ridge stones of the roof. Nine old and three young were all Mr. Milne received from this locality, but he believes all the others to have been of the same species.

As long ago as 1874 I can remember seeing many Bats flying around the Barracks shooting-lodge, and identified one certainly which happened to be knocked down by a driver's whip; and Mr. R. Godfrey found "probably this species" around Rannoch Lodge, in the same district and close to the Barracks, observing one in broad daylight; and others were seen along the lochside towards Camusericht. This was in 1902.

Very common about Perth city and central Perthshire, also identified about Duncrub, and common all up the Tay valley; found by W. Evans very common at Fearnan, and three knocked down by him were all of this common species.

### Vespertilio daubentoni, *Leisler*. Daubenton's Bat.

The fullest account of the discovery of this Bat in 1888 at Loch Dochart in the west of the area is given by Mr. Symington Grieve, and a most interesting account it is, but the space at our disposal prevents my going into all the details. The full account will be found in the *Annals Scot. Nat. Hist.* (vol. iii. pp. 193-5); and a further note in the same for 1896, p. 57, dated 6th July, when Mr. Symington Grieve again found the colony in possession of the same localities. Mr. Grieve had been aware of a large colony of Bats frequenting this place for some six or seven years previously. At that time this discovery extended the known distribution of the species in Scotland, making this locality the northernmost outpost known at that time. On the occasion of Mr. Grieve's visit in September 1896, he found no traces of the presence of the colony, and raises the question as to whether Daubenton's Bat may be a migratory species.

We now know that Daubenton's Bat is common along the valley of the Tay from Perth to Ballinluig, and especially so about Murthly and Dalguise (*auct.* J. G. Millais). One of the Loch Dochart specimens first obtained is in the Perth Museum, and specimens have also been obtained by Miss E. Thornton at Stobhall, near Stanley. Indeed Daubenton's Bat may be looked upon as the commonest species throughout its presently known range in such localities as are suited to its habits. Loch Dochart is some 512 feet above sea-level.

Millais quotes Grieve as authority for Loch Dochart, and he also draws attention to the fact that Fleming in his *British Animals* has included it under the name of *emarginatus* as occurring in Fife (*op. cit.*, p. 6), and also Campbell as authority for Argyll (see *A Fauna of the North-West Highlands and Skye*, p. 1). I am glad to be able to give illustrations of the rocks (see page 58).

We are also made aware that these Bats frequent the lower loch at a position well known to Mrs. Place of Glen Dochart, where she has heard them "chirruping" above her head in the chinks of the rocks while her guests and herself sat beneath at tea. When I visited Loch Dochart in May 1905, in order to guide Mr. Norrie to the situations and in order to get photographs taken, there were none to be seen or heard, and the probability of course was that they had not arrived from their winter quarters.

In mid-December 1905 the weather was so mild that the Rev. Wm. Macconnochie on several evenings saw three or four or more Bats hawking for moths over the roads. The Rev. Wm. Macconnochie adds: "Three species of Bat frequent the old church building at Guthrie," and "Daubenton's Bats appear later in the season than the Pipistrelle. Both are common, and often seen at a little stream above the Lunan Water in considerable numbers."

### Vespertilio mystacinus, *Leisler*. Whiskered Bat.

Mr. William Evans when referring to the occurrence of this species in East Lothian (*Annals Scot. Nat. Hist.*, 1893, p. 146), refers to the previous record, a specimen having been captured by Mr. J. Ray Hardy "about four miles from Rannoch on the Pitlochry road in June 1874." That example is now in the Owens College, Manchester. On applying to Mr. Hoyle of Owens College Museum, and asking for any fuller particulars, that gentleman informed me it was "obtained at Dall, in the Black Wood of Rannoch." This lies in the opposite direction from Kinloch Rannoch (which I presume is what is meant by "Rannoch" as quoted) and from "the Pitlochry road," and thus, being about four miles from Rannoch, would give a locality some eight miles further west. Mr. Hoyle also adds that "the Rannoch specimen was probably taken in July 1865." Mr. Evans quoted direct from information supplied by Mr. Ray Hardy himself, but when I pressed this point, Mr. Hoyle wrote that he had interviewed Mr. Ray Hardy also, and the latter, at such a distance of time, could not feel quite certain of the exact locality, and advised the acceptance of Dall as the true one. It may seem finical to insist upon such a slight difference in the two accounts, but it might prove of more importance than appears on the surface, because the characters of the two localities are very different, Dall being within, or close to, the old original Black Wood of Rannoch and amongst the pines, and the Pitlochry road being mostly fringed with natural birch and hardwoods.

It may be worth mentioning that when driving past the policies of Dunalastair on the 1st June 1905 one Bat was seen just about the same place—four miles from Kinloch. An attempt to knock it down with the driver's whip, however, failed.

## Order **INSECTIVORA.**

### Family **ERINACEIDÆ.**

**Erinaceus europæus,** *L.* **Hedgehog.**

The Hedgehog is mentioned in the old *Statistical Account* as occurring in the parish of Clunie (vol. ix. p. 232), also in parish of Dowally (vol. xx. p. 472), and it is stated to have begun to appear in Kincardineshire in 1793, in the *Agricultural Survey* of that county. In Pennant's time it does not appear to have been found beyond the Tay, perhaps not beyond the Forth (1877), as quoted in Lightfoot's *Flora Scotica* (vol. i. p. 13); but see old *Statistical Account*, as above (*loc. cit.*, 1792, p. 13).

In 1813, however, Don spoke of it as formerly rare in Angusshire (*sic*), "but of late years has appeared in tolerable plenty" (Headrick'

*Agriculture of the County*, Appendix, p. 38). This is only a few years later than the previous accounts. Mr. William Evans, however, writing in 1892, quotes a correspondent, Mr. M'Keay, gamekeeper, Murthly, as speaking from his own knowledge of it being there in abundance for "over forty years"; and who adds, that sixty years previously Fleming set its northern boundary at the Moray Firth (say 1832).—*Mammals of the Edinburgh District*, p. 26. Mr. Milne, Auchenblae, says that the Hedgehog did not appear in the Mearns until the beginning of the nineteenth century, *i.e.* after Pennant wrote.

Mr. Milne, in his notes before referred to, describes an albino which he received on the 17th June 1896. The spines on the back and hair on the lower surface white, and indeed all white excepting the ears, nose, feet, and some spots on the forehead, which were blackish. It was taken at Drumtochty. Some of the young got were also partial albinos.

In the vermin lists of the Perthshire estates of the Breadalbane territories for the years 1890 to 1901, a total of 2880 are accounted for. The greatest numbers were killed in 1891 (370), in 1896 (391), in 1898 (313); and the smallest returns are given in 1893 (219), in 1899 (262). However, I do not consider that these figures are very significant of their abundance over such an immense tract of country.[1]

**Talpa europæa**, *L.* **Mole.**

Old *Statistical Account*, Dowally (vol. xx. p. 472). At the date of the writing of the *Agricultural Survey* (1793) Moles were very abundant in the Mearns.

Mr. Godfrey found it common around the shores of Loch Ericht in 1902, and in 1904 he met with the species amongst the rocky sides of Glen Ogle at an elevation of some 1500 feet. This was in midsummer, or at date of 27th July 1904.

With reference to Moles taking freely to water and swimming, see Millais' fine work on *British Mammals* (p. 125); also consult an article about Mammals generally taking to water by Dr. Edward Hamilton, amongst which Mole and Hedgehog are included (*Annals Scot. Nat. Hist.*, 1897, p. 67).

## Family **SORICIDÆ**.

Of Shrews generally we find many records scattered throughout the early writings, but many of these are imperfect and hesitating, and I think are better ignored, though it is indeed probable that most of them relate to the Common Shrew (*Sorex tetragonurus*, Herman). By absolute records it would be difficult, if not impossible, to trace out the progress and any extensions which the different species have made. Dr. Buchanan White, as late even as 1893 (in his list), says: "All probably more or less common, but we possess examples of only one of them, viz. the Water Shrew."

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[1] Millais speaks of the Hedgehog as "very rare in the north of Perthshire" (and in mountainous parts of Argyll and Inverness), and assigns as a reason the difficulty it probably meets with in crossing the mountains.

### Sorex tetragonurus, *Herman*. Common Shrew.[1]

When it is found to have been recorded that this species was detected on the summit of Mhealfourvonie, a mountain in Inverness north of the Caledonian Canal, as long ago as 1848 and 1837 by Mr. A. Hepburn—*i.e.* at an elevation of some 2700 feet, and far north of our present boundaries—it does not appear to be a rash conclusion that their distribution was continuous through all the districts to the southwards. However that may be, there is abundance of evidence now to show the continuous nature of its dispersal. We have records from almost sea-level to even higher altitudes than the above. They appear to be equally at home, at least in summer, on rich lowland pastures and on rugged, stony hillsides. Mr. Godfrey found them on the steep hillsides of Glen Ogle, and records and specimens sent from all parts speak to its general and wide distribution on the mainland of Britain. Mr. Godfrey also obtained several at the Bridge of Ericht, Loch Rannoch side, in 1902.

### Sorex minutus, *L.* Lesser Shrew.

Of this we have fewer records as yet. On the low-lying "Links" of the Tentsmuir Mr. William Berry of Tayfield sends us the first authentic record, and a specimen was sent to Mr. Eagle Clarke at the

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[1] The Common Shrew at the time I write, November 1904, has not been satisfactorily recorded from Mull—on one occasion at least a very young Mole having been sent to me as a Common Shrew. Another animal had been sent to Mr. Thomas as a Shrew, but I have not ascertained what it was, so it is just possible that one might have been correctly sent. However that may be, the well-known distribution has been "continental" as applied to Great Britain, and not "insular." As Millais tells us: "It is unknown in Shetland, but has been found 'thinly distributed in the Orkneys' (quoting the volume of our series on these islands), "having been found in Hoy and Walls."

Millais also adds that "the Lesser Shrew is unknown in Orkney and Shetland." But this statement has since been proved to be inaccurate, as Mr. Eagle Clarke has captured specimens in Orkney within the last few months (date at November 1904), and we have already seen that it is known to ascend to many other high places in Scotland and elsewhere (v. *Annals Scot. Nat. Hist.*, 1892, p. 42).

Royal Scottish Museum, and was duly noted in the *Annals Scot. Nat. Hist.* (1892, p. 69).

Of the continuity, however, of its distribution at the present time there seems to be scarcely any reasonable doubt, though it seems certainly to be not so numerous as its bigger brother, which was in all probability a later arrival in Britain, as we find it cut off, unless by introductions, from both the inner and the outer isles, while the present smaller species holds its principal colonies among these islands. I may mention here that specimens have been sent me from Argyll recently, and on a former occasion also from another part of that area to Mr. Eagle Clarke. Mr. Charles Alston obtained specimens on Loch Awe side in November 1903, and preserved them. I mention this here merely to preserve the continuity beyond our area at present under discussion. And Colonel Feilden has recorded a specimen observed by himself on the summit of Ben Nevis (*Annals Scot. Nat. Hist.*, 1892, p. 42).

### Crossopus fodiens (*Pallas*). Water Shrew.

Of very general distribution, though not easily observed, and their presence not always detected, except by the use of traps. I have had specimens accidentally trapped by falling into pitfalls formed by the withdrawal of old "stobs" along the line of a fence near the waterside, and some of these I kept alive for some little time; but the cannibal proclivities which they each and all developed in imprisonment soon reduced the number to one, and he died also—no doubt from repletion. He had left the skin only of his last surviving relation as neatly laid out flat as bleaching linen, and as cleanly divested of every scrap of flesh as if it had been scraped by a scalpel.

From all parts of the country specimens are being received, *i.e.* from mainland localities. Dr. Buchanan White when he wrote had specimens from TAY sent in to the Museum at Perth, and there were records from Fife (William Evans), and as long ago as in the days of Fleming's *History of British Animals*. Nevertheless, records have not bulked largely by any means, though there can be scarcely any doubt regarding their almost universal dispersal on the mainland of Scotland.

Millais records having examined a very large specimen—a ♂—which is in the Perth Museum, and exceeds five inches in length. It is known to occur on the Tay at Dalguise, Delvin, Stobhall, etc.

And in the East of Fife Mr. W. Evans has met with it at Strathtyrum near St. Andrews.

## Order CARNIVORA.

### Family FELIDÆ.

**Felis catus, *L.* Wild Cat.**[1]

At the date of 1881-2 I brought the history of this species up to date in an article often referred to in past volumes of this series, from which I now extract such items of interest as relate to our present area: "Throughout the whole of the county of Perth south of a line from the Firth of Tay through the city of Perth, and thence to Loch Earn and Tyndrum, it must by that time have been considered extinct. One was killed at Dupplin Castle about 1852 by Mr. William Pitcaithley, junior. The last killed in the district south of Glen Dochart was by Malcolm Macpherson, upon Ben More, near Suie, in 1863 or 1864. It had been quite extinct for thirty years in the valley of the Allan Water and between Stirling and Perth. One was killed about that time (say 1850) on the east hill of Gleneagles by Mr. Anderson, gamekeeper; it was worried by dogs. The last obtained in the Callander district was trapped in or about 1857, and is now preserved in Leny House, where I have seen it. (Since I saw it, it has been restored or restuffed, and is in good preservation.) Another was seen by Mr. J. B. Hamilton of Leny about 1827 or 1828, which was got in the same place, viz. in the Glen of Leny. (This and the following strictly belong to the area of FORTH.) The keeper on Balquhidder killed Wild Cats among other vermin about twenty-five years ago (say 1855), but they are extinct now (1881). None have occurred on the Braes of Doune for many years (FORTH), and it appears to have become extinct in the Methven, Crieff, and Lyndoch districts. For more than forty years none had been seen around Blairgany in the Callander district. At Cromlix the last was trapped by Mr. J. Macnaughton upwards of twenty years ago (say 1857 or 1858); it was taken in Cambushinnie Wood adjoining Cromlix, and was killed by a blow of a rabbit spade. Two were killed in the west of the county at Aberfoyle (FORTH), one by a keeper named Scott, the other by a shepherd and his dog about the year 1855.[1]

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[1] Regarding the discovery of bones of the prehistoric Cat in a marl-pit in Forfarshire, Dr. Edward Hamilton has written very fully in a paper in which he endeavours to trace the real origin of the race. I do not attempt to enter here into such an obscure question, but will merely refer my readers to his exhaustive statements (*Annals Scot. Nat. Hist.*, 1897, p. 67).

"Now coming more strictly within the watersheds of TAY, and taking another belt of Perthshire, which may be described as south of a line drawn east and west through Killiecrankie and Rannoch, including the Moor of Rannoch, up to the confines of the county and the march of Argyllshire and the head of Glencoe, I make out that the species is extinct in all the Breadalbane Perthshire estates and in Atholl, and over the whole area just indicated—unless indeed a record in 1879 of footsteps seen in snow and one killed, a young female, within four miles of Dunkeld can be trusted (?). Previous to this capture, which was accomplished by two collie dogs, no specimen of the true Wild Cat had been secured for fourteen years (say 1865) anywhere in this district. Still within this belt, but close to the boundary of the first belt treated of, the last killed at Dunira was about twenty-six years ago (say 1854), as I was informed by Mr. Duncan Macgregor, twenty-two years gamekeeper in Glen Artney. 'This was at a place called Scarnach Mhor, or The Big Carn.' This position lies right behind the mansion-house on the face of the hill overlooking the policies, and the capture took place under the following circumstances: 'The keepers during their rambles noticed that Foxes were frequenting the cairns, and set traps in all the available places among the stones. Next morning, to their great surprise, a large-sized Wild Cat was caught. No one knew whence he came, because not so much as a track had been seen on the snow for years previously, and none had been seen since.'

"Coming to Loch Tay side, one was killed by Duncan Dewar (before mentioned) in 1869 in Finlarig Wood; it was a large female, and was preserved by him. I saw this fine animal in his house in 1879. Another was killed by Mr. Dewar above Auchumore House in 1856 in a deep glen; it was a very large male, and was sent to the late Marquis. It was a noble animal, and, as Mr. Dewar related, easily knocked over his terrier with each stroke of his paw, and turned twice upon himself when he went to save his dog. In 1836 three were killed by Peter Mackay, gamekeeper, who was still alive at the time this article was first written, on the hill above Taymouth Castle.

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[1] "In a recently published popular work of great merit, viz. *Picturesque Europe*, occurs the statement that 'On Ben Venue is the *Coire nan Uriskin*, or Cave of the Goblin's Cairn, which shelters Wild Cats and Badgers.' As regards the subject of the present article the verb must be used in the past tense."

"It was believed to have become extinct in Glen Lyon for more than forty years (say since 1840). Also in Rannoch it is probably extinct. The last killed on Dunalastair on the river Tummel was about the year 1852. A little further south, on Glen Queich Moor, one was trapped in Glen Lochan above Loch Vullein, in the Amulree district, about thirty years ago (say 1850), by a keeper employed by Guthrie.[1] This would be about 1850, and none have been heard of in that part since. They are extinct too in Glen Shee in the east of Perthshire, the last having been trapped at Dalnaglar about eleven or twelve years ago (say 1869 or 1870). Another is regarded as having been killed in Glen Queich about forty years ago by a farmer and his dogs (say 1840).

"In the north of our area Wild Cats existed about 1842, and even to a later date on Loch Ericht side, as I was assured by Mr. Macgregor, the gamekeeper at Dalnacardoch,[2] and indeed possibly up to 1870, when he gave me information, but on the north side.

"Finally, as regards Perthshire both within the TAY watersheds and in other portions within FORTH, etc., the general information supplied by one of my ablest correspondents, viz. 'that since he took an interest in natural history (then over some twenty years, or back to say 1860), he cannot remember ever seeing or having heard of one being captured in the county of Perth,' pretty accurately fixes the date of their becoming really rare there, and it will be seen that I have only been able to hear of three instances since that time. This correspondent adds: 'The so-called Wild Cats which have been obtained during this latter period proved on close examination to be domestic cats which had taken to the woods.' But in these three instances there is good reason to believe the genuineness of the records.

"Having thus treated of the species as a former inhabitant of the county of Perth, I now add what little there is as regards the Vale of Strathmore and the eastern extensions of the Grampian Mountains through Forfar and Kincardine.

"Here our information becomes more vague and uncertain, as indeed is to be expected where the real Wild Cat had been longer unknown to the present race of gamekeepers and vermin killers. A vague account is given of one killed in the north-east of Kincardine and sent to the Museum at Montrose. Just over the watershed in Glen Dye, which drains into the river Dee through the Water of Feugh, two were killed by a gamekeeper—Clarke—in 1850, the only ones seen in that quarter for thirty years (say 1820). Glen Dye lies among the eastern extremities of the range of our watershed between TAY and DEE."

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[1] "Guthrie, who was one of the two principal actors in the restoration of the Capercaillie at Taymouth. See under that species.

[2] "Referred to under Dotterel in our *Moray Basin* volume, *q.v.* Mr. D. Macgregor—not the same as just mentioned—could remember the Wild Cats calling in the Black Wood of Rannoch when the young were being fed by their parents."

The above pages are an almost exact copy of what I wrote in 1881-2 in the *Zoologist*, and since then I have not succeeded in accumulating much more of interest anywhere throughout the area, but I add these few notes as they have been told to me. To maintain some sequence in chronology, however, I will go back to a few earlier accounts, as is usually my custom.

Amongst earlier evidences of their presence the author of the volume on the *Agriculture of Kincardineshire* says, "Wild Cats are found in several of the woods." This was in the latter years of the eighteenth century (1793 being the date of the publication). But in all these old accounts we must remember how vaguely such statements were often given. I do not find any mention of Wild Cats in the volume of the same series which relates to Forfar; and, still more surprising, neither is any mention made of the animal in the volume for Perthshire!

Dr. Buchanan White in his list mentions, as the last he had heard of in Perth, the ones I have related above as obtained by Mr. D. Dewar at Loch Tay—Finlarig and Auchumore—in 1869. Thus the Wild Cat has long been considered as extinct. But I have since been informed by Mr. Duncan Dewar—now retired from his duties at Remony, and residing at Killin at the head of Loch Tay—that he was fortunate enough to kill three more true Wild Cats on Remony before he retired in May 1904. These were got by himself—one in 1896, one in 1898, and the last in 1899. I have the vermin lists from the Breadalbane estates in Perthshire, but a pity is that *all Cats* are entered therein under the column for *Cats* simply! These vermin lists include the years between 1890 and 1900. However, I do not consider that fact as militating in any way against Mr. Dewar's communication.

With regard to the previously recorded Wild Cats in Glen Dye (of DEE), I am further informed by Mr. J. Milne that they are still preserved in the keepers' house in Glen Dye, where one of the keepers is Tom Craven, whom I knew well when he was gamekeeper at Dee Bank, Banchory, and whose father and an uncle were well-known assistants to the Falconers, the brothers Barr; his brothers are all gamekeepers in that district. In a later letter from Mr. Milne, in reply to my inquiry, he tells me that the two were trapped or shot at the Slough of Mount Slade on the east side of Cloch na ben, and, as stated already, are both preserved in the keepers' house at Glen Dye.

At the date of 1870 Wild Cats were considered as quite extinct on the eastern ranges of the Grampians in the forests of Drumouchter and probably in Atholl, but may have lingered a few years longer in the forest of Ben Alder, on the north side of Loch Ericht (MORAY).

## Family **CANIDÆ**.

### **Canis Lupus**, *L.* **Wolf.**

The whole of the Wolf Saga has so lately been done and redone for the complete *Scottish Fauna* as to render it almost unnecessary to go over the well-beaten track again. However, to preserve the sequence of this series, it may be right to do it once more, at least as regards our present area.

Mr. Harting, and after him Mr. Millais, has very faithfully sketched the chronology, but I do not find that he has referred to a somewhat curious and, I believe, an utterly wrong statement which at least should have some notice taken of it, viz. when Pope Pius II. wrote in the fifteenth century, he made the statement that "there were no Wolves in Scotland"; but it must have been that His Highness was misinformed or had otherwise spoken in error, because there is abundance of evidence to prove that Wolves existed till a much later date, as has been over and over again noted by authors.

Mr. Millais, quoting Harting's original article, instances Fittis for authoritative remarks upon the Wolf in Rannoch and Lochaber, and John Taylor—the Water Poet—for Forfar (*The Pennylesse Pilgrimage*, p. 50, of date 1618). In 1528 the Earl of Atholl provided sport for King James V., and showed up amongst other game "Woulffs" (*sic*).

Again, in 1563 there was a hunt in all the forests of Atholl and Badenoch and Mar, at which Queen Mary "ordered one of the fiercest dogs to be slipped at a Wolf," and five Wolves were killed.

In 1577 it is mentioned in the old *Statistical Account* that "The Spittal of Glenshee—an hospital or house of refuge for travellers from Wolves"—was erected, as were many others in existence for similar purpose.

Camden still speaks of Wolves generally in Scotland, but in Gibson's edition he has the marginal note, "No Wolves now in Scotland (1777)." Sibbald dated the extinction at the time he wrote in 1684 (*Scotia Illustrata*, part ii. p. 9). Surtees gives the date of 1682, and Pennant says 1680 (*Tour in Scotland*, vol. i. p. 206). Buffon had it that "Wolves still existed" when he wrote in 1756. M'Queen, who killed the supposed "Last Wolf" on the Findhorn, died in 1797.

The old *Statistical Account* (vol. ii. p. 465, 1792) gives the information that "the woods in Blair Atholl and Struan afforded shelter for Wolves" (p. 473), and "coffins were made of five flagstones to preserve dead bodies from Wolves in Atholl." In the *Agricultural Survey of Perthshire* it is stated that "Government increased the reward for killing a Wolf in proportion as the species became more rare." And, as we are informed by Dr. Buchanan White (*Scot. Nat.*, vol. iii. p. 284), "the pits in which the hunters lay in watch for them were still traceable," *i.e.* on the occasion of a visit paid to the Glen of Atholl by members of the Perthshire Society of Natural Science.

The Stuarts in their *Lays of the Deer Forest* (p. 109) tell us that perhaps "the greatest number of traditions are preserved in one circle around Strathearn," *i.e.* as regards their previous abundance.

Along the northern border of TAY, Scrope, in his able account of *Days of Deer-Stalking in the Forest of Atholl*, mentions its lingering about Ben Alder (*op. cit.*, p. 109).

As regards the testimony adduced by Harting, found in the sale-catalogue of the London Museum of April 1818, lot 832, as follows: "Wolf—a noble animal in a glass case. The last killed by Sir Ewen Cameron," it may be evidence or not. By the insertion of the word "was" between the words "last" and "killed," a totally different reading would be exhibited, and the whole significance of the statement would be altered.

Millais and Harting also quote the account of more "Last Wolves" as given—but outside this area.

The old *Statistical Account* also relates the tale of other "Last Wolves in Scotland," viz.: In the middle of the last century "two Wolves—*the last seen* in Scotland—were chased from the wood of Trowan (*i.e.* near Glen Turret, Perthshire), and followed by their pursuers into the Highlands, where they were killed."

There is even a legend of another "last" Wolf near Port of Menteith (FORTH), of which I have some account.

The claim of Rannoch as having held *the last British Wolf* is upheld by the author of an excellent local volume lately issued.[1] The author gives the circumstances of its death minutely; and he argues quite in favour of the fact against the claim of Sir Ewen Cameron of the year 1680, claiming the later Rannoch date of 1710.

The following items are taken from the *Black Book of Taymouth*:—

1594—Item in the Rent-Rolls—Discharge—"Of great mearis slane be the wolf, iiij.; item—of yeir auld horses slane be the wolf, i."

1621—"To save * * * devastation every tenant was obliged to make four 'cusats of iron'[2] (probably some sort of dog-spear) for slaying of the wolf, that great enemy of the shepherd." (The Wolf) "was not finally extirpated till the end of the (seventeenth) century."

1622—"Johnne Dow M'Instalker pursues in court Patrick M'Nab of Swy, &c., &c., for tyning of three kye quhilks were slane be the wolf."

### Canis vulpes, *L.* Fox.

As far back as our statistics take us, the Fox was an abundant species, and at the time of the earlier records is stated to have given full work to a pack of hounds in Forfarshire and another over the range in Aberdeenshire. This appears to have been prior to 1793 (*Agric. Survey of Kincardineshire*, etc.). And at these earlier times Reynard does not appear to have been blamed nearly so much as in later years for depredations among lambs and flocks and in the poultry yards. The writer of this account considered that Foxes' principal food consisted of hares, of which, he adds, "there were incredible numbers." Reynard also got credit for a liking for an occasional fish diet, or shell-fish diet, as he was often found prowling about within sea-mark (*loc. cit.*, pp. 394-6).

The old *Statistical Account* speaks of "two kinds," and to this belief we have before referred in previous volumes of this series (cf. vol. ix., *A Vertebrate Fauna of North-West Highlands and Skye*,

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[1] *Schiehallion*, by the Rev. John Sinclair, M.D., B.D., Parish Minister of Kinloch Rannoch (Stirling: Eneas Mackay, 1905, *q.v.*, pp. 39-43).

[2] I cannot find this word in the *English Dialect Dictionary*, nor do I find it in Jamieson's *Dictionary of the Scottish Language*.

p. 12). This common assertion in the present instance is mentioned under the parish of Muthill (vol. viii. p. 486). The Fox is mentioned as occurring in many widely separated parts of the area —indeed so often as to render it unnecessary to repeat them here.[1]

A very full relation of the duties of the professional fox-hunter is given under Dunkeld parish, and is worth perusal (*op. cit.*, vol. xx. p. 439).

Foxes have continued in scarcely diminished numbers even down to the present time; if indeed they have not appreciably increased, notwithstanding the constant persecution they are subjected to. But it is well known that it is not to the interest of those employed to kill them that they should *all* be worried to death, and the consequence is that a remarkably even crop appears year after year, as can easily be gauged from some hundreds of vermin lists in my possession, supplied to me from most of the larger estates of Scotland. Thus, on the Perthshire estates of Breadalbane during the past ten years—between 1891 and 1901—562 old Foxes and 674 young ones are entered as returned to the estate office and paid for. A steady crop of old and young gives an average of 112·5. The most were obtained in 1894, viz. 143; and the next in 1897, viz. 132. Thus, also in the returns from the Atholl estates during the same period or nearly so—viz. between the years, or seasons, 1894-5 and 1903-4—1425 were returned and paid for; and again, the most were destroyed in 1897-8, viz. 159; and the next largest number in 1894-5, viz. 156; while 1903-4 was not far behind with 153. The average shown in the ten seasons works out at 142·5; and the fewest were killed in 1902-3, and again in 1896-7, viz. 117 and 126 respectively. To example a much smaller area or estate, I find on that of Ballinlick 40 were killed by the keepers in six years previous to 1898, since which year I have no more returns.

That some small areas are favourite haunts to the exclusion of others adjoining is, I think, generally acknowledged. I may instance one example. In a quite small area among the Forfar Hills an organised party killed 4 Foxes—3 dogs and 1 vixen—and 8 more were seen the same day. This was upon a stretch of ground three miles in length and one mile in width—from the Tomb and Runavey in the south, to Craig Leacoch in the north. On the same ground one man killed 12 old Foxes in one year, and another 30 Foxes in two years. This locality is not far removed from the Spittal of Glen Shee. Innumerable other similar statistics could be instanced, but I think I have given enough to show how widely distributed Foxes are, and how well they withstand the attacks made upon them both by professional foxhunters, and by shepherds and sheep-farmers, etc.

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[1] In another part of Scotland—viz. the Campsie district of FORTH—the Rev. Mr. Lapsley, when writing the account of that parish, expressed his belief in *three* varieties of this animal being found—an opinion also held by some other authorities. It is right to mention here that Mr. Lapsley was a well-known naturalist of his time. The fullest notice of him I have had access to is that by Cameron in his *Parish of Campsie* (P. M'Leod, 47 Cowgate Street, Kirkintilloch); also, Dr. Robert Lee, author of the article on Campsie parish in the *New Statistical Account*, mentions Lapsley in a very appreciative footnote.

Among other items which refer directly to our present area, Millais quotes the *Rental Book of the Cistercian Monastery of Cupar Angus* (Grampian Club, under Fox, pp. 107, 141, 170, 251, 262, *q.v.*) He also quotes the *Black Book of Taymouth* (1631), a communication from the Earl of Mar to his cousin Sir Colin Campbell of Glenshurchag, as an authority in early days upon hunting the Fox with dogs. Burt is also quoted in connection with TAY in Daniels's *Rural Sports*, and is referred to by Millais. I consider it to be quite unnecessary to repeat these here so soon again.

## Family **MUSTELIDÆ.**

### Martes sylvestris, *Nilss.* Marten.

The old *Statistical Account* only makes very casual comments on its occurrence in parishes of Comrie (*op. cit.*, vol. xi. pp. 134, 180) and Weem (vol. xii. p. 134).

Don considered it rare enough to warrant his recording one shot in the Wood Hill of Glamis in 1808 (*Agric. of Forfar*, Appendix, p. 37). I find that a specimen was presented to the Old Museum of Perth in 1827 by Mr. Smeaton, Breadalbane (*Catalogue of the Vertebrate Animals now or lately in the Perth Museum of the "Literary and Antiquarian Society,"* the Bazaar edition, 1881, p. 17).

In 1881-2 I had gathered materials for a monographic article upon the "Rarer Animals of Scotland"—see *ante* under Wild Cat—and at that time I found that the Marten was of even greater rarity than the Wild Cat, but of more general dispersal in Scotland, due to its greater propensity to travel and wander over wide areas. Thus, in 1879 one was got in Glen Artney, and we may shortly follow the steps of its decadence here to preserve some continuity in its history.

None had been met with or heard of in any way for thirty years previous to the time I wrote (1881-2), nor have any been seen since

1850 anywhere in the valley of the Allan (FORTH), nor in other portions of the south of the area or of the county. But there is always a consideration in connection with such returns as are made of these things, and that is:—In how far can estate returns be entirely depended upon? There is no doubt that larger prices can be obtained from furriers and even collectors for pelts and specimens than are paid by the estates offices. However that may be, when returns are made to estates offices, these are genuine and of recording value. But notwithstanding this long apparent absence from the region just mentioned, it is certain that an example occurred even further to the southward, viz. in the East Lomonds of Fife, as late as 1893, which is still in the possession of my friend Mr. Charles Cook, on whose ground it was obtained, and who recorded it at the time in the *Proc. Royal Phys. Soc. Edin.* (vol. xi. p. 117). Then comes a record again in Glen Artney, and its reappearance there after many years—already referred to *supra*—and in one or two other parts of south-west Perthshire. Just prior to 1879 two were heard of on Ben Vorlich, though before this it was believed to have been extinct there for upwards of thirty years. The last of which I have any account was killed in the Glen Dochart district on Suie, in 1871, by Mr. Macpherson, gamekeeper.[1] Just to the south again, and therefore really in FORTH, viz. on Stronvar in Balquhidder, one of the two seen on Ben Vorlich was probably accounted for, as recorded in the *Field* of 17th April 1880.

Glen Almond and Glen Queich records date back to about 1850, but on Loch Tay Mr. D. Dewar killed a fine male at Finlarig in 1867. None had been seen there, according to Mr. Dewar, since 1840, when he himself got one on Remony. Also a Mr. Mackie, formerly a keeper on Breadalbane, got one about two miles from Loch Tay (?) about 1862, "*and people came a long way to see it.*" In 1868 one was got at Loch Tay, as given in the vermin lists, and one was seen as late as 1879 from time to time quite in the lower straths near Murthly, as I was informed by Dr. Mackintosh, at that time resident at Murthly Asylum as medical superintendent.

Turning now to a return of vermin killed upon the Perthshire estates of Breadalbane, we find no fewer than 56 Martens were paid for between 1891 and 1901, as follows: In 1891, 9 were got; in 1892, 6; 10 in 1893; 8 in 1894; 9 in 1895; 4 in 1896; 7 in 1897; 2 in 1898; 0 in 1899; 1 in 1900; and 0 in 1901.

But in a similar return kindly placed at my disposal by His Grace the Duke of Atholl, for the ten years between the seasons of

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[1] More minute particulars, all worked out at the time I wrote the monographic article, will be found detailed there (*Zool.*, 1882).

1894-5 and 1903-4, I find no entries whatever of Martens, and on a separate slip containing notices of rarities, neither is any mention made of the animal; and these notes contain, His Grace assures me, all the rarities which have come under his personal knowledge for the past forty years, during which time he came into the management of the Atholl estates. The significance of such omissions is not always quite clear, as I have already indicated, but there may also be a possibility that the much greater extent of barren mountain-lands in the great afforested portions of Atholl may not yield quite so abundant amenities for the species as the richer and lower-lying grounds. Still, it is curious to note the complete absence of even a single instance.

In the east of our area, *i.e.* in Strathmore and the Forfar and Kincardineshire hills, etc., I had no returns whatever from the most easterly outspurs of the Grampians when I wrote the monographic paper already alluded to *ante*, but since then I have received evidence of one trapped at Fasque between 1864 and 1867, by an old keeper, from Mr. J. Milne. At that time they were considered rare, and none had been observed on that estate for forty years previously—say 1827.

Even as long ago as the date of the Old Acts of Scotland occurs the passage which may serve to show the estimation in which the pelt of the Marten was then held: "It is ordainit that na man have Mertrick skinnes furth of the realms; and gif he does that, he pay the King xis. for the custume of the skin: and for x foumartes skinnes callit fithouris xd." (James I., 1424, c. 24, ed. 1566).

## Weasels and Stoats.

Taking all the country over—I mean all Scotland—the Stoat is the more abundant as well as the more generally distributed species of the two. The Stoat is certainly the more abundant on high and rocky ground, and is much oftener to be found even to the tops of our highest mountains than its smaller relative. Of course one simple reason is that there is far more of this mountainous country than of the lower and agricultural lands, and in places in the latter the Weasel, or "Mouse-Weasel," may perhaps be slightly the commoner.

In many, indeed in most, of the returns of vermin placed at my disposal for the purposes of this fauna, Weasels and Stoats are "lumped" together, and I indicate their numbers over a territory which embraces the whole of the vast extent of the Breadalbane Perthshire estates and the adjoining lands of Atholl.

Both are entered under one column in the returns from Breadalbane, and these reach the enormous total of 9862 in the ten years between 1891 and 1901. The largest number was obtained in 1897, viz. 1075; then came 1016 in 1898, and 998 in 1896.

The fewest in number was obtained in 1894, viz. 791; then came the next fewest in 1895, viz. 784. In all the other seasons the numbers exceeded 800.

In the Atholl returns both are also entered under one joint column. These reach the great total of 7198 in the ten years or seasons between 1894-5 and 1903-4. An analysis shows that the greatest numbers were paid for as follows: 806 in 1899-1900; 792 in 1901-2; 770 in 1897-8; and 720 in 1903-4.

The fewest in numbers were got as follows: 624 in 1894-5; 655 in 1895-6; 689 in 1902-3; 690 in 1896-7; and 694 in 1900-1. The whole gives an average of, say, 720 per annum.

There is one thing taught by such figures, viz. that they must surely convince some sentimentalists how impoverished many larders might become of game and poultry if all trapping were abolished or even temporarily suspended! It is possible that in time, if such were done, things might right themselves, and the surplusages of the increasing hordes of vermin might die off either from a surfeit or, much more likely, from a final scarcity of supplies; but that is an experiment very few of those who know would be likely to try; and if any one did set such a fashion and expect to have other and all things on a country estate amenable, he would very soon find that that fashion he set would require change, as most fashions do.

In lists like the above, allowance must be given for the expertness or otherwise of the men employed to keep down vermin, but this can scarcely be of so much value in this case as with some other kinds of *feræ naturæ.* But indeed there are few highland or lowland keepers and trappers who are not experts at such a necessary duty—I mean the rare exceptions prove the rule.

Where the two species are "lumped" together in the vermin lists, I give them under the more general subject as above. But where they are kept separate, as they are in some cases, I give examples under each species.

## Mustela vulgaris, *Erxl.* Common Weasel.

The old *Statistical Account* has only very fragmentary references to the Weasel by name, as follows: Moulin (vol. v. p. 53), Weem (vol. xii. p. 134), Killin (vol. xvii. p. 372), Dowally (vol. xx. p. 472).

Commoner in the low grounds than the Stoat, but less abundant than the larger species in the more elevated and stonier portions of the area. Formerly, when it was no doubt equally abundant as now, it was rather held in favour by the farmers in the valleys as useful in keeping down rats and mice, though taking an egg occasionally.

On the comparatively small estate of Ballinlick returns of 501 Weasels are given, and from almost all places there is evidence of greater or less abundance; but the general evidence tends to the belief that the larger species is the more generally abundant of the two. In fact, the Weasel is more characteristic of a more southerly and more lowland distribution, and the Stoat of a more northerly and more alpine one.

### **Mustela erminea**, *L.* **Stoat.**

Abundant, especially in the higher portions.

The old *Statistical Account* includes Weem (vol. xii. p. 134, xvii. p. 494), and says: "The fur is shorter than the skins brought from Russia."

In 1813 Don does not include it in his lists for the districts of Strathmore.

At the present time and regularly great numbers are destroyed, and the vermin lists, as we have already seen, include many thousands as paid for. On Ballinlick in ten years between 1893 and 1903, 243 were accounted for *besides Weasels.*

### **Mustela putorius**, *L.* **Polecat.**

The old *Statistical Account* includes Muthill (vol. v. p. 53), Weem (vol. xii. p. 134), Killin (vol. xvii. p. 372), Dowally (vol. xx. p. 192).

In 1813 Don speaks even at that time of the Polecat or Foumart as rare in Angus, and only one had come under his personal notice. "That one was near the old mill of Brathan, about four miles from Brechin, and upwards of thirty years ago" (say about 1783).

Now, none that I could hear of had been observed or heard of anywhere in the Allan valley between Stirling and Perth since about 1860, but one was trapped at Leny in 1858 and one in 1855. According to Col. Drummond Hay—our best authority in the district—they were common in the Carse of Gowrie about 1820 or 1824, but had been extinct, or reckoned extinct, for many years prior to 1881 or 1882. At Dupplin they are stated to have disappeared since about 1855. At Doune Mr. Anderson writes: "In all my trapping experiences I have only captured four. About thirty years ago I caught one (say 1850) on Lord Moray's estate above Doune." On Balquhidder (FORTH) Mr. W. Dewar killed Polecats about 1855. It was exterminated in Glen Queich above Cumbree about 1850. Now, I have said that Polecats had long been exterminated in the valley of the Allan between Stirling and Perth, but on the slopes of the Ochils, facing to the north, they seem to have lingered a little longer. None had been seen or heard of upon the estate of Cloanden[1] (TAY) since Mr. Haldane purchased the property about 1850; but on the estate of Kincardine, some four miles from Cloanden, one was got about 1870. This was the last known to have been heard of in the district, where formerly it was considered common. I have a recent record from the TAY portion of the Edinchip property.

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[1] Now called *Cloan.*

In 1880 Mr. Walter D. Duncan, co-lessee with Mr. John Dixon of the Edinchip shootings (Sir Malcolm Macgregor, Bart.), saw a fine Polecat close to the march between Edinchip and Suie; and previous to this Mr. Dixon shot one about the same place—which I take to be somewhere on the ridge on the west end, above Loch Eala (J. A. H.-B.). This was in August 1880. When shooting there shortly afterwards, I was told by the gamekeeper that he had not heard of any in that neighbourhood since about 1868—*i.e.* until the above were seen and shot. The keeper had also been keeper on Suie prior to his coming to Edinchip. Two were trapped in Glenartney Forest about twenty years previous to this (say about 1860 or 1861).

Taking the belt further to the north, one was trapped on Ballechin Hill about thirty years ago, *i.e.* about 1850, by Mr. Thos. Murray, gamekeeper; and about the year 1852 Polecats were known to haunt the east side of Drummond Hill. At Killin Mr. D. Dewar got a male and a female in 1858, the last obtained on Loch Tay side. One of these he carried home in his handkerchief, but it was so offensive that he could not keep it. The Breadalbane lists for the past ten years contain, however, records of 8 Polecats (*i.e.* killed since 1891, when 3 were paid for; then 2 in 1892; 1 in 1893; 1 in 1894; and 1 in 1895). From the Atholl properties I have no returns, nor are any mentioned among the rarities which have occurred during the past forty years.

Dr. Buchanan White seems, however, to have considered it as still of occasional occurrence in Perthshire when he drew up his list—as indeed he was justified in doing, as the Breadalbane lists prove. He designated it as "rare in Perthshire, occasionally seen in both Highlands and Lowlands, but since 1869," etc.

Dr. Buchanan White then instances one killed at the Stormonthfield ponds about forty years ago—previous to the date of his writing; and I have the account of one trapped in the Carse of Gowrie by Mr. James Keddie, on the authority of Col. H. W. Feilden, in 1849. Col. Feilden adds: "It had previously killed sixteen chickens belonging to Mr. Gray, tenant at the home farm. Keddie found their remains in a drain about a quarter of a mile from the farm."

Coming now to Strathmore and the easterly portions of our area, the last I could hear of in Forfar was killed at Auldbar by Mr Smart, about 1858 or 1859.

From Kincardineshire I found some difficulty in obtaining information in 1881. Mr. Mowat, however, gamekeeper at Ury, stated that they were fairly abundant about 1843, but he had never heard of any between 1863 and 1869 upon the adjoining property. As many as three, however, he himself secured on Ury in 1843 in one morning; but only one was got between 1849 and 1853. In 1851 a Polecat attacked one of his ferrets and nearly killed it.

**Lutra vulgaris**, *Erxl.* **Otter.**

Common, and widely distributed both by the seashores and inland. Vermin lists rarely include Otters in their columns, and indeed if many are obtained their pelts are usually sold to furriers or private parties.

The old *Statistical Account* gives, as frequented by the Otter, the following parishes, but for abundant reasons not necessary to repeat here again, these notices cannot be held as satisfying as regards its former distribution. There is, as will be observed, great unanimity in the records of the old *Statistical Account* in the parishes reported upon. These are: Weem (xii. p. 134), Monzie (xv. p. 244), Killin (xvii. p. 372), Dowally (xx. p. 472).

The Otter appears to be scarcest in the eastern portions of the country, and does not seem to be often met with at the inland localities, at least not very generally. It is found occasionally upon the Luther Water which runs through the hamlet of Auchenblae (J. M.'s lists and correspondence). But older accounts speak of it as inhabiting "the steep rocks by the shores of Kincardine and Forfar and the caves which are their special haunts."

I only speak generally of its well-known and much wider dispersal at the present time, adhering only to positive records and absolutely known distribution, prefacing such by the simple adjective "almost universal."

As already said, we cannot gauge its comparative abundance from the returns of vermin paid for at the different estates offices, as can be done, at least to some extent, as regards the Wild Cat, Marten, and Polecat.

The Breadalbane lists—1891-1901—give the total of only twenty-six paid for, but how many were killed at the same locality, or how many by the same hand, I have no present means of knowing. And if they came to be investigated it is very possible that they would be found to have been killed by one hand and in one place, or in only a very few spots. The details, such as they are, are as follows: In 1891, 3 were got; then 3 in 1892; 2 in 1893; 1 in 1894; 1 in 1895; 6 in 1896; 4 in 1897; 0 in 1898; 3 in 1899; 4 in 1900; and 2 in 1901.

On the Atholl estates, during forty years, only one was sent in in 1876 and two in 1883. It should be remembered that these Breadalbane lists refer only to the Perthshire areas of the territories.

The commercial values of Otters' and Badgers' skins, etc., are greater than the rewards would cover. The same may be said in part also of those of the Marten and even the Wild Cat, and in a lesser degree of the Polecat; but one is able to judge more easily of their respective scarcity or abundance from other sources than the vermin lists alone.

Otters breed in the cliffs or clefts and cairns at Loch Dochart (see Photo, the first of the set, under Daubenton's Bat)—*auct.* Mrs. Place and Mr. Place, *viva voce* at Fortingal to me, May 1905.

### **Meles taxus** (*Schreb.*). **Badger.**

Much rarer than formerly in the mountainous portions, but commoner in the central and western districts than in the central and eastern parts. Rare in cultivated and low grounds as compared with its former distribution.

The old *Statistical Account* gives Moulin (v. p. 53), Muthill (vii. p. 486), Monievaird and Strowan (viii. p. 572), Weem (xii. p. 134), Monzie (xv. p. 244).

The *New Statistical Account*, referring to the parish of Fordoun, says: "The Badger supposed extinct." So even at that time (1843) it appears to have been a decadent species in the more easterly tracts of Strathmore. And, says the same writer, "seldom met with near Dunotter," and "said to be extinct in the neighbourhood of the Grampians."

Somewhat earlier than this date Robertson in his *General View of the Agriculture of Kincardineshire* (1807) included it as "a native, and very harmless animal."

Now, in 1849 Badgers occupied earths at GREY in Forfarshire, and Keddie—before mentioned, p. 22—trapped a couple. This Col. H. W. Feilden can confirm from his own observation.

In the west, when J. Colquhoun wrote his *Sporting Days* (1866), he spoke in a general way of the habitation of Badgers in the low cairns of Glen Dochart and Glen Falloch (FORTH), and in one of these old haunts I am aware of their continued presence.

In the county of Fife, within our watershed, Col. H. W. Feilden supplies the record that "Jas. Keddie confirmed his recollection of their presence in 1848. They inhabited Kinglassie Wood between St. Andrews and Crail; and that he—Keddie—helped to dig them out for my father—Sir William Feilden, Bart.—and brought them to Cambo. Kinglassie Wood was cut down immediately afterwards, viz. in 1848-9, and none have been heard of in that district since." The sea-cliffs of St. Andrews to the east were their breeding haunts fifty years ago, and it used to be the custom to "draw the badger" in a hole in St. Andrews links. My then correspondent—Mr. Chas. Harvey—informed me that "it was forty-two years (*i.e.* dating back from 1881-2, or say 1840) since a Badger was killed in the district around Largo" (FORTH). They have been known to occur a little further to the west. A year or two prior to 1881 one was caught on Bunarty Hill, which lies up towards the Cleish Hills, and is well wooded on its southern slope. At Markinch one was obtained in 1880 (14th Feb.), but it had been many years since any had been met with there before (v. *Scotsman*, 10th Feb. 1890).

I now take up my old paper on the species and trace its decadence down to the date of 1881-2 as there given, adding any additional and later data afterwards.

The information was considerable at the date of 1881-2. Beginning in the north of the county, Badgers were very abundant about 1842, and for a few years afterwards along Loch Ericht side, and also in Rannoch, but they are now (1882) reported as rare or almost extinct—some correspondents say "extinct." In the Upper Tay district and Breadalbane, however, they are still not uncommon, having been seen at Killiechassie and on the Cluny rocks as late as 1880, and one having been killed in 1874. It was believed they were still common in this locality, which is well adapted to their requirements.

In Remony and Breadalbane, further west, however, they appear to have become scarce, and in one part of the district Mr. Dewar claims to have killed the last one seen, viz. in 1844, a little to the west of Kenmore on the south side of Loch Tay; but on Mornish Hill and above Finlarig Mr. Dewar killed eight during the last ten years. In 1871 he got the mother and two cubs. At Chesthill, Glen Lyon, two were killed during seven years since 1872, and they are not extinct there, while about Glen Lochy and Killin four were killed in 1879. At Glen Queich, south of Loch Tay, and near Easter Shian it is probably extinct, the last killed having been about 1860 on the borders of Amulree and Easter Shian shootings. In the east of the county, between 1870 and 1880, five were obtained, but Mr. Paterson of Dalnaglar told me that he thought they must have come long distances, and were not really daily inhabitants of the glen. A few still exist about Dunkeld, but it was considered that they would soon become extinct unless steps were taken for their preservation. In the Carse of Gowrie and the range of the Sidlaw Hills, Col. Drummond Hay remembers them as very abundant about 1820 to 1824, but they had become extinct many years ago. At Dupplin several have been killed of late years, *i.e.* prior to 1882. From all of the areas of the valleys of Allan and Earn west of this, I can hear of none obtained of late years.

Coming to the more westerly parts of the area, Mr. Macpherson killed one on Ben More, and they were stated not to be extinct on the Braes of Balquhidder (FORTH), where one was got in 1879, and another the same year at Glenbucket. Nor are they extinct—at the time this was first written—at Callendar. One was killed at Blairgany in 1877, and now, if any remain, they are preserved. They were once abundant in Glen Ogle above Loch Earn and at the head of Edinchip glen, but it seems doubtful if they exist there now.

Thus it appears that the Badger has become rarer or extinct in many parts of the north, and still rarer in the south of the county of Perth; also in the south-east and east, but retains a hold in the west and central portions.

In the extreme south-east one was caught by a poacher named Frank Morgan along with two other men, Peter Allison and John Pryde, who were alive in 1882, and who caught it in a common hare-net at a gate. It was kept alive, but again escaped. This was on the estate of Cromlix.

Up to this point I have been quoting from my previous article. Since that paper was published I have obtained a few more items of some interest.

The latest Mr. J. Milne has heard of to date of 1904 is of one trapped in Fordoun Hill Wood about the year 1872 by the keeper on the estate of Fordoun. Thus, apparently after a lapse of over forty years, an old haunt has been revisited since the days of the *New Statistical Account* (*vide supra*). Whence these came can only be guessed at, but in 1864, or between 1864 and 1865, three are stated to have been trapped in Glen Dye, which is just over the watershed.

One of these was kept alive for twelve months. There is also another but rather vague record of two caught upon Drumtochty by the keeper there, "about thirty years ago," which would come if correct very near the date of the above record in 1872. In 1898 Mr. J. Milne describes the status of the animal as "very rare here now, if not indeed extinct."

The Badger is still found in the more westerly districts here and there, as for instance in Glen Dochart and adjoining hills and valleys, in Glen Lyon and more rarely in the neighbourhood. In 1894 my cousin, Dr. Adrian Forrester, returning from a fishing excursion, when we were staying in Killin, saw two Badgers hanging in a "gamekeeper's museum" in Glen Lochy—shootings held by Mr. Wegg. And Badgers are still, at date of 1905, inhabiting localities in Glen Lochy and Glen Dochart. Three Badgers were secured in Glen Lochy in the summer of 1905, shortly after my visit there in May of that year; and these were sent to Mr. Duncan Dewar for preservation (D. D., *in lit.*, June 26, 1905).

Dr. Buchanan White in his list says: "I know of only four or five places where it is said to be of regular occurrence at this date, and I would be glad to hear of others." This was at the date of 1884.

In the Breadalbane vermin lists the Badger figures prominently. In the eleven years between 1891 and 1901, 41 are returned as paid for. In details as follows: In 1891, 7 were got; 6 in 1892; 2 in 1893; 5 in 1894; 1 in 1895; 7 in 1896; 2 in 1897; 3 in 1898; 2 in 1899; 3 in 1900; and 3 in 1901. Very likely more were killed, which, however, were not brought to the estates offices.

Mr. W. Evans saw one which was killed on Ben Lawers on April 27, 1892.

### **Ursus arctos**, *L.* **Brown Bear.**

The only remains recorded of the Bear from Scotland are from a locality far south of our present area, viz. Shaws, Dumfriesshire, in peat moss lying in marl (Dr. J. A. Smith in *Proc. Soc. of Antiquities of Scotland*, vol. xiii. p. 360, 1879).

But Leslie says that the Caledonian Forest was full of them (*repertissimam*), and Camden (*Britannia*) included them as residents in Atholl. And Caledonian Bears were well known in Rome after the advent of the Romans.

Much other evidence is adduced by Harting of the presence of Bears in Scotland, but space here forbids me from doing otherwise than referring my readers to the volume which admirably covers all the ground (*British Animals Extinct within Historic Times*), and repeated by Millais in his great work on *British Mammals* (vol. i., 1905).

## Sub-order *PINNIPEDIA.*

### Family **PHOCIDÆ.**

### Seals in General.

In the old *Statistical Account* references are quite general to "Seals"; but as far as can be judged the remarks may be held to relate to the Common Seal (*Phoca vitulina*), unless otherwise specified or apparent. Seals are briefly spoken of as "off the mouth of the river Tay, Dundee" (vol. viii. p. 204).

The *New Statistical Account of Kincardineshire* says (p. 217): "In the recollection of persons not yet very old (*i.e.* in 1842), Seals were numerous on the coast of Dunotter. They were then to be seen in herds, basking on the rocks, or sporting in the bays; and the hunting of them was practised both for amusement and profit. Now (*i.e.* in 1842) they have nearly abandoned the caves to which they resorted as their breeding places, and only a solitary one is to be seen skulking for prey at the foot of the rocks." And again, "Off St. Cyrus Seals and Porpoises frequent the rocks and river-mouth."

Seals are said to ascend the river Tay "at times as far as Stormontfield," and this is in all probability referrable to the Common Seal. In 1807 the *Black Book of Kincardineshire* has the statement that "Seals are now becoming scarce, owing apparently to the bag-nets which destroy them"; but, as will be seen later, this is an opinion which is not shared in by our latest practical authority—Mr. J. G. Millais—at least not to any appreciable extent, he considers, is this any check to their numbers even at the present day. Though a few may become entangled and be secured, Millais considers the animal much too strong as a rule to be so enmeshed; and indeed if this was a common fate, there would be little necessity for those interested in the salmon fishings to employ a man to thin their ranks by shooting—as has been the practice there for some time. Millais considers the Common Seal as only a migratory animal —at least with the great majority of individuals—at the mouths of our bigger rivers like the Tay.

The numbers of the Common Seal frequenting the entrance waters of the Tay and other larger rivers of our east coast vary according to circumstances in different seasons, and there can be little doubt when the run of migratory salmonidæ is at the strongest is the time most of the Seals put in their appearance, as fully told by Mr. Millais, and as usually seen under general observance.

At one time no doubt there was evidence that Seals were more abundant at all seasons along the east coast of Fife between St. Andrews and Crail; and were also oftener seen in numbers on the tidal reaches of lower Tay, going further up these reaches formerly than now, or doing so with greater regularity. Feilden remembers the Common Seals as quite abundant on the coast, and, while he had seen many, his brother, who had been presented with a beautiful single-barrelled gun made by Dickson of Edinburgh, shot one on the rocks.

The Rev. J. W. Taylor, in his *Historical Antiquities of Fife, Chiefly Ecclesiastical* (N.D.), says in his introduction, and on the authority of the previous minister of Flisk, the Rev. Dr. Fleming: "Numbers of Seals sunning on the sand-banks," and "Porpoises tumbling up the river as far as Flisk Manse, but now (date not given) not a Seal or a Porpoise is visible in the whole Firth of Tay"; and he assigns as a reason for their disappearance at the time he wrote "the frequent steamers and the fleets of ships which every tide brings in and carries out from Dundee" (*op. cit.*, p. 6). (The approximate date of these remarks is the early third of last century.) As far up as Invergowrie Bay there is a sand and mud bank which was named the "Dog-bank" from the numbers of Seals which frequented it. A very cruel method of capturing Seals is described as prosecuted by one of the name of Melville in the *Trans. of the Perthshire Society* (vol. ii. p. 80), viz. by sticking upturned hooks of iron in the rocks frequented by the animals. In this way an occasional one was impaled and secured.

Of the Common Seal occurring in fresh water—of which we have given instances in a previous volume of this series (*Argyll*, pp. 20-21 and p. 24), and of which I have since heard of other occurrences at Loch Morar, Argyll, where the animal must have traversed dry land in order to get there—they are known to ascend the Tay beyond Perth at least, and the tale is told of a "Grey Seal" having ventured even up the river Earn. It was seen resting on a shoal on the river (I think I can picture the spot in my mind's eye) by a Mr. William Robertson when fishing for salmon. Mr. Robertson hooked a fish and the Seal at once plunged into the river, and it was with some difficulty he managed to secure the salmon. It is not said that the Seal pursued or laid hold of the salmon, but that such a thing has taken place before I think we gave evidence in our *Argyll* volume (*loc. cit.*). "Mr. Robertson then procured a gun at a farm-house and shot the poor beast." So runs the story in the *Fishing Gazette* of November 3, 1894. No doubt this was a *P. vitulina* in one of the many pelages which Millais has so recently illustrated.

### Phoca grœnlandica, *Fab.* Harp Seal.

One specimen of this Seal is on record. It was shot by Mr. Kennedy in Invergowrie Bay, Carse of Gowrie, on September 6, 1895, and was seen by Mr. Millais. It was an adult female (*Annals Scot. Nat. Hist.*, 1902, p. 182). It is mentioned again in the *Report of the Curator of the Perth Museum* (vol. ii. p. 102).

### Cystophora cristata (*Erxl.*). Hooded Seal.

Mr. Robert Walker gives the only authentic record of the occurrence of the Hooded Seal, and describes it in an elaborate article—like most of that author's papers—in the *Scot. Nat.* (vol. ii. pp. 1-5). It was a young male, and was caught when reposing near low-water mark on one of the ledges of the undercliff at St. Andrews. Mr.

Walker reported it as in a very fat condition. The date of the capture was 22nd July 1872. It is further noticed also in Dr. Buchanan White's list (*loc. cit.*, p. 78). This appears to be the only perfectly satisfactory record, unless one included in the catalogue of the Vertebrate Animals of the Old Museum be a different one—though it is probably the same.[1]

### Halichærus gryphus (*Fab.*). Great Grey Seal.

Not uncommonly seen, and a few occasionally obtained both along the coasts and at the entrances of Tay and other parts along both the Fife and the Forfar and Kincardine shores.

The Great Grey Seal was probably much more abundant than it is now. Don's "Great Seal" was no doubt of this species (1813). The attention, however, of naturalists—at least to the result of recording—does not appear to have been drawn specially to their abundance or scarcity at different times.

In 1863 six of these huge beasts were caught in the salmon-nets off Tents Muir, as will be found carefully recorded by Mr. Robert Walker[2] in the *Scot. Nat.* (vol. ii. p. 188); and two more were also obtained in 1868. One of the latter was sent to Prof. Turner, and is taken note of by him in the *Journal of Anatomy and Physiology.* The skull of the other one, of these two latter, was sent to Mr. Speedie—the lessee of the nets and of the southern portion of the Tents Muir—by Mr. Walker. Prof. Turner also makes mention of another caught off Montrose (*loc. cit.*).

There are portions of this animal in the Perth Museum, bearing dates of March 1870, also taken in Mr. Speedie's nets off Tents Muir, and another at the same place in 1873 (*vide* Mr. W. Evans's *Mammals of the Edinburgh District*). An adult female, bearing date of 1870, is reported upon by Prof. Turner which weighed thirty-three stones and is preserved in the Anatomical Museum of the College of Surgeons in Edinburgh (vol. iv. p. 270). Two young ones are also recorded from near Montrose.

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[1] Consult "Cetaceans in Scottish Seas" (*Annals Scot. Nat. Hist.*, 1876, pp. 1-2).

[2] "On the Great Grey Seal (*Halichærus gryphus*) on the East Coast of Scotland," by Robert Walker, F.G.S.E. (*Scot. Nat.*, 1875-6, vol. iii. pp. 154-60). He ably reviews the literature, as indeed he was always in the habit of doing. Hitherto he has received no encomium; and very little notice has ever been taken of his careful work, at least none that I have been able to find. I would like to reproduce the whole article, but that would occupy some five or six pages.

Dr. Buchanan White speaks of it as still common on the Tay tidal reaches, and of a young one preserved in the Perth Museum—presumably obtained within the area of TAY or its immediate coast-line.

### Whales Generally.

Works of reference :—

1866—*The Greenland Whale.* (Ray Society.) Eschricht and Reinhardt.
1876—Bell's *British Quadrupeds*, latest edition.
Taylor, William. Papers in the *Scot. Nat.* and *Annals Scot. Nat. Hist.*
1882-5—Turner, Prof. Papers in the *Journal of Anatomy and Physiology.*
1881—Southwell, Thos. *Seals and Whales of the British Seas.*
1880-3—Southwell, Thos. "On Occurrences of Seals and Whales on the East Coast of Scotland" (*Proc. Nat. Hist. Soc. of Glasgow*, vol. v. pp. 66-9).

## Order **CETACEA.**

### Family **BALÆNOPTERIDÆ.**

**Megaptera longimana** (*Rudolphi*). **Hump-backed Whale.**

"The well-known Dundee Whale"—so referred to by Dr. Buchanan White in his list—was found dead off the coast of Kincardine, having been previously pursued and wounded off the mouth of the Tay, or rather in the Tay estuary. It was afterwards placed in the Dundee Museum (*Scot. Nat.*, 1883-4, p. 200).

Another, got close to our borders on the north, was stranded in the estuary of the river Dee in 1863 (v. *Scot. Nat.*, vol. i. p. 105). The skeleton of this one is in the Derby Museum in Liverpool.

**Balænoptera musculus** (*L.*). **Common Rorqual.**

Don records, under the synonym *Balæna physalus*, having found the skeleton of one of this species "to the east of Dundee" about two years prior to the date of his writing (say 1811).

Robert Walker describes one which was obtained at Kinkell, some three miles east of St. Andrews (*Annals Scot. Nat. Hist.*, vol. i. p. 107).

With reference to the Rorquals and Whalebone Whales feeding upon herring and fishes fry, see Sir Robert Lloyd Paterson's article in the *Irish Naturalist* for October 1904, entitled "Plays of Birds and 'Balls' of Fry" (*loc. cit.*, pp. 228-31).

### Balænoptera rostrata (*Fab.*). Lesser Rorqual, or Sea-pike.

The earliest date I can give for the occurrence of this small species within the confines of our area is the imperfect record as it stands in the *Scots Magazine* (vol. xxviii., July 1766, p. 387), where the note is given: "A whale was cast ashore this summer within a mile of St. Andrews, 31 feet long, 27 feet broad at the middle, and 10 feet at the fin of the tail; its mouth as large as a house-door." [1]

One of this species was found dead off Bell Rock on 7th September 1857, and was deposited in the Edinburgh Museum (now the "Royal Scottish Museum" by name!) It was measured as fourteen feet in length (v. *Royal Phys. Soc. Edin.*, vol. i. pp. 441-7).

One was obtained near Arbroath, on the Forfar coast, on 29th July 1869, the baleen of which was in the possession of Mr. Robert Walker, who records the specimen in the *Scot. Nat.* (vol. i. p. 111).

In April 1877 one was stranded at Bervie on the Kincardineshire coast (*v.* Dr. Struthers's *Anatomy of Megaptera longimana*, Edin., 1889; *Journal of Anatomy and Physiology, etc.*, vol. xxii., 1888).

## Family **DELPHINIDÆ.**

### [Grampus griseus (*G. Cuv.*). Risso's Grampus.

*Obs.*—Though I am not aware of any occurrence of this rare cetacean actually within our present area or coast-line, I mention here the occurrence which was duly reported by Dr. Ramsay H. Traquair (*Annals Scot. Nat. Hist.*, 1899, pp. 197-8). My interest in doing so is of some faunal significance, because the question has often suggested itself to me, Whether should I include the Bell Rock with the Fauna of TAY or with the Fauna of FORTH? The Isle of May is certainly the "Key of the FORTH migrations," but I am inclined to be less certain of the value of the Bell Rock as a stepping-stone of migratory birds, and certainly if we consider how much richer FORTH is in cetacea than TAY, it makes a somewhat interesting point to record such as occur so near our boundaries. To treat of this in detail, however, may well be left to Mr. William Evans, when he gives us his finished work on the *Fauna of FORTH.* I only mention it here in an *Obs.* because I have not yet made up my mind about the value of Bell Rock as influencing the two faunas of TAY and FORTH, and this I cannot do until I can carefully go over the old Migration Schedules, which are not at present in my hands.

In the same way I may take this opportunity of mentioning that the Common Dolphin (*Delphinus delphis*) has occurred "round the corner," in FORTH, but I have no certainty of its having been found anywhere along the coasts of Forfar or Kincardine (v. *Annals Scot. Nat. Hist.*, 1896, p. 1, *auct.* Simpson). Likewise two of the Beaked Whale (*Hyperoödon rostratus*) have been got far up the Firth of Forth at Bo'ness, 12th October 1895; and at Grangemouth, March 1894 (Simpson, *loc. cit.*, p. 2); but not from the Tay so far as I can learn.

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[1] Indeed, this can scarcely be admitted as a true record. It may have been *Megaptera.*

### Globicephalus melas (*Trail*). Pilot Whale.

Many reports of large "schools" or "droves" of small Whales occur throughout our earlier literature, but such are really of so common occurrence that it seems hardly necessary to quote them all. I give an early one, however, as an instance, which, read in connection with the footnote appended, may at least save future references to that publication—the *Scots Magazine*[1] (1817, vol. i., October, p. 282). It is there stated: "An immense shoal of the species called 'finners' (*sic*) was on Monday the 6th inst. observed in the river Tay; and coming in contact with the east projection wall of the new harbour, Dundee, from twenty to thirty of them were pursued by people in boats and killed. These animals were of different sizes—the largest not being less than twenty-two feet long." There seems no reasonable doubt as to their belonging to this well-known species on our coast.

In 1813 Don spoke of a drove of small Whales which appeared to be of this species—*Delphinus melas* or Caaing Whale—which were stranded up the Tay.

A specimen of *either this species* or one of the other smaller Whales, which bear in common the popular name of "Bottlenose," is said to have endeavoured, along with six others, to ascend the lade which goes into Old Harbour at Dundee, but was caught by a carpenter. This record, of course, is of no practical value.

### Phocæna communis, *F. Cuv.* Porpoise.

As we have seen, these animals were formerly abundant in the Tay estuary (see under Common Seal, *ante*). And they are still far from uncommon, though not perhaps so abundant as in the days of Fleming of Flisk's accounts.

The old *Statistical Account* tells us that Porpoises "went up the

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[1] An examination of a MS. index which I had prepared for me of this magazine, of ninety-five volumes, 1739 to 1816, yields very few definite records, the above being about the only one of much interest for TAY. Most of the other records have been utilised by later writers, such as Neill and Dr. Walker, or rejected by them.

Tay as far as Errol in large shoals," and in much more recent times this remark may still be borne out, as Dr. Buchanan White informs us in his list, "It has been seen as far up as Perth Bridge."

## [Delphinus delphis, *L.* Common Dolphin.

Although I allude to this under Risso's Dolphin as only bearing doubtful values of record in TAY, I ought not altogether to refuse the evidence afforded by our older writers. Sibbald, in his *History of Fife and Kinross*, distinguished the locally named "Meer-swines" from the locally named "Porpess," and spoke of both kinds frequenting TAY and FORTH, and gave other evidence which certainly tends to the belief that this species came to be included. (Consult Mr. W. Evans's *Mammals of the Edinburgh District*, p. 113, where he has already threshed this out as far as seems necessary.) In the meantime it must stand within square brackets, though, as Mr. Evans rightly says, I believe it is only a question of time to have them removed. Don also includes this species in his list of Forfarshire animals (Headrick's *Agriculture of Angus*, App. p. 39). This is a more positive and dependable record, I think, and might well be omitted from the brackets, but I prefer to place it inside for the present, and await some more recent arrival of the species on our coast before final admission. Mr. Evans's prophecy has indeed come true already as regards FORTH, as I have indicated under Risso's Dolphin (*ante*, p. 32).]

## Delphinus albirostris, *Grey.* White-beaked Dolphin.

Mr. J. M. Campbell of the Kelvingrove Museum, Glasgow, duly records at length the occurrence of this Whale off the Bell Rock on the 7th September 1880, and the specimen has been presented to that Museum. Mr. Campbell exhibited the specimen, which measured five feet eight inches (5 ft. 8 in.) in length, and he very fully described it at a meeting of the Glasgow Natural History Society, and published the account in the *Scot. Nat.* of January 1881. As regards occurrences of marine mammals off the Bell Rock, I think it is safe to give these place in a fauna of TAY; but, as already remarked, the tendency appears rather to favour the Forth entrance than the Tay estuary. I cannot say whether this may be due to special directions of currents and drift of food-supplies, or to the greater difficulties of getting past Dundee, or indeed what reasons there be, if any, for a preference. It is enough for me here to state the fact that a preference *does appear to be made*, if we judge of the greater number of records of both numbers and species of marine mammals which do enter the larger firth.

### Sus scrofa. Wild Boar.

While its existence all over the Highlands was well known, and its distribution very general, we must look principally for evidence to the many indications of its presence in the place-names which are scattered all over our area, of which it seems only necessary to allude to a few, thus: Carn Torey, Loch an tuirck, etc.

Scrope instances an attempt to re-introduce them at Marr Lodge (DEE), but the want of acorns—says Scrope—their favourite food rendered it abortive.

## Order **RUMINANTIA.**

### Family **CERVIDÆ.**

### Cervus elaphus, *L.* Red Deer.

At one time Red Deer must have been of very general distribution both in Highland and Lowland situations, because even down in the Carse stretches of Gowrie remains have been found in the "Forest Bed" (see Dr. Buchanan White in the *Proc. Perth. Soc. Nat. Hist.*, vol. i. p. 117, and *Scot. Nat.*, vol. i. part iv. 1883-4).

The old *Statistical Account* tells us: "It does not often happen in Scotland that Deer are lost in snow, but an instance is related of a herd being smothered in a wreath in Atholl" (*op. cit.*, vol. ii. p. 199, 1794). The same old work estimates the number of Deer in the forest of Glen Artney at between two and three hundred head (*op. cit.*, vol. xi. p. 181). At that time, as also at the present time, Deer passed over from the forest of Glen Finlas to that of Glen Artney at Aney (*i.e. a-n-eih*=the deers' ford), a name often found in other parts of afforested ground in the Highlands of Scotland. At the present time the forest of Glen Artney holds about a thousand head of Deer.

In 1813 Don mentions Red Deer as found sometimes in the Clova Mountains, "but rare," and also in the wood of the Forest Moor, near Forfar.

Great increase of Deer took place in Atholl after the Duke began to protect them there, where a tract of a hundred thousand acres was devoted to their use. It was computed that four thousand fed there annually (Barclay, *Contra Monarchamachos*, pp. 81-2; v. old *Statistical Account*, vol. xx. p. 470).

A good account of the old method of driving Deer in the forest of Atholl and also a list of the forests of Perthshire is given in many works, amongst which see *Agriculture of Perthshire* (p. 328).

To show upon what a large scale preparations were made when the Duke of Atholl called his men and neighbours together for a great "Tinchel" or Deer-hunt, I quote from the *Gleanings from the Clunie Charter Chest*: "In 1711.—Another great Deer-hunt took place in this year on August 17, when orders were issued to the parishes of Blair and Strouan, Moulin, Kirkmichael, Taywood, and forest of Cluny, Glenalmond, Guy, Kilmorich, Logierait, Fortingall, Weem, Strathtummel, Dull, and Balwhidder, desiring the vassals and fencible men out of every merkland to parade at Blair Castle on August 21, in the evening. The hunting began at Benagloe on Wednesday 22nd, when no Deer were killed; on Thursday in Carn Righ, where there were twenty-five Deer killed; and on Friday in Ben Vourich, where thirty-two were killed."

The above and much other matter has already been quoted from these old documents by Mr. Chas. Fergusson, in an article which contains great store of old materials.[1]

Scrope defined the area of the forest of Atholl as about forty miles by eighteen—giving 134,000 to 134,458 acres; and goes on to say, "and the additional acreages occupied by grouse." Deer exclusively occupied 51,708 acres imperial. In 1776 Deer did not exceed a hundred in number; but by 1838 Scrope estimated their number at from five to six thousand. Other individuals estimated them at seven thousand.[2]

Most interesting is the collection of cast horns—a consecutive set of which is preserved in the Blair Castle—to show the annual improvements, experimentally performed, of giving certain kinds of food to a Stag, the principle of which was to supply abundance of lime-containing material—powdered deer-horns, in fact.

In 1799 the *Agricultural Survey* states that Red Deer are not so numerous in the county of Perth as formerly, and speaks of the forest of Atholl and the confines of the shires of Inverness and Aberdeen as their principal haunts, and the Duke of Atholl allots many thousands of acres to his Deer; and then follows the relation of the ancient methods of hunting already alluded to, and so often spoken of by our older authorities.

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[1] "Sketches of the Early History, Legends, and Traditions of Strathardle and its Glens" (*Trans. of the Gaelic Society of Inverness*, vol. xxiii. pp. 154-78).

[2] Those who cannot refer to Scrope's *Days and Nights of Deer-Stalking* direct, will find an excellent review in the *Edinburgh Review* of April 1840.

The Rev. J. W. Taylor, in his *Historical Antiquities of Fife, etc.*, referring to place-names—*e.g.* "Deer-drink," etc.—says: "But the Deer have all disappeared"; and he goes on to relate in his own experiences of the district (*i.e.* around Flisk) for thirty years, at the date of his writing, he "had only once caught sight of a Stag, as it bounded through a copsewood" (*op. cit.*, p. 6).

In the east of our area, Mr. J. Milne tells me Deer are now comparatively rarely seen outside the enclosed grounds which have been provided for them upon the property of Fasque. Formerly on the Drumtochty Moors Mr. Milne has seen as many as forty together in Annachar Glen.

The herds of the Blackmount Deer-forest and those of adjoining grounds of Sir N. Menzies and Ben Alder and Corrour often intermingle, those of the Blackmount feeding eastwards in an east wind, and coming over the Moor of Rannoch, cross the river Gower into the grounds to the east of that river, as I have on many occasions myself known and witnessed when shooting on the Moor of Rannoch. An east wind invariably brought them away east from the Blackmount marches. Mr. Godfrey saw a herd of some seventeen Hinds close above Dunan, and others at Loch Eigheach (pron. *Eagh*). This, of course, was in the summer-time.

Though, as I have said, the Deer come out of Glen Artney in the south-west of our area, and pass between Glen Artney and Glen Finlas, it is not often they are seen in Glen Ogle—as I am informed by Mr. Godfrey, and as I have previously been assured locally when I used to shoot there when Messrs. Duncan and Dixon had these shootings from Lady Macgregor.

The *Scotsman* and the *Field* are the two papers which give a *correct account* of the infuriated semi-domesticated Stag which attacked my friend Mr. Andrew Williamson, as I was assured by himself (*in lit.* 26th March 1892)—v. *Field*, October 31, 1891. This was in the Deer-park at St. Martens, near Perth, which place he had the shootings of at that time. In his letter he also told me he "had very nearly to shoot another of the same lot after he had recovered from his wounds." This other Stag came up to within ten yards, and he was prepared to shoot it when the keeper and his dog appeared on the scene, and the Stag turned and made off. (See also how Maclennan, forester in Glen Fannich Forest (MORAY), was gored and killed.—v. *Fauna of Moray.*)

I do not know who receives the greatest number of heads of Perthshire Deer for preservation, but Mr. Malloch has a good many sent to him; and he has given me some particulars of such as he received in the years 1893, 1894, 1895, and 1896. Looking over that register which he kindly placed at my disposal, I find that in 1883 he got in 56 heads or trophies to preserve, of which 3 were royals. The dates given were those on which he received them, and are of little value for purposes of recording. In 1884 he got in 40, of which none were royals, and none over ten points. In 1895 he had 29, of which again none were royals, but there were 4 of eleven points. In 1896 there were 44, of which 6 were royals. In 1897 there were 6 of eleven points. And in 1898 there were 11 of ten points.

In the north-east parts of our area, formerly, the forest of Alyth was wholly stocked with Deer, but at the time of the agricultural survey they had been "banished from our Grampians, though in hard winters a few stragglers come down the glens from the remote mountains."

Glen Artney has now been fenced (*i.e.* between 1872 and the present time, say 1904, or about thirty-two years); but this does not prevent them always from breaking out over the fencing during storms of snow, when the drifts often reach nearly to the top of the seven-foot fence.

About 1870 a solitary Stag was seen several times as far south as the Darritch Hill (on my own property, and one of that portion of the central hills of Stirlingshire known as the Denny Hills), but I never heard of its capture.

## Rangifer tarandus. Reindeer.

I find it difficult to discover any new matter since Mr. J. E. Harting published his very exhaustive monograph upon *British Extinct Animals, etc.* Therein will be found almost every item of information regarding its occurrence in Scotland before, or evidence afforded by its remains after, it became extinct. In his monograph he refers most fully to all that previous writers had recorded. It is only right here, however, to refer direct to some of those who had worked out these records before, and then simply give a short abstract to preserve continuity. Dr. J. A. Smith had written a very full account of these records relating to Scotland (*Proc. Soc. Antiq. Scot.*, vol. viii. pp. 186-223), from which and other sources Mr. Harting drew a great part of his information, as is fully acknowledged by him. By referring to Dr. J. A. Smith's admirable account, I simply indicate the information given by all previous writers, at least as regards Scottish remains. Others who have contributed to the literature of the Reindeer in Scotland are many, amongst whom may be mentioned Dr. Joass (*Proc. Soc. Antiq. Scot.*, vol. vi. p. 386); Neill (*Mem. Wern. Nat. Hist. Soc.*, vol. iii. p. 214); Geikie (*Trans. Geol. Soc. Glas.*, vol. i. p. 71, 1863); Hibbert ("On the Question of the Existence of the Reindeer during the Twelfth Century in Caithness, etc."—*Brewster's Edin. Journal of Science*, New Series, vol. v. p. 50); and Alston (*Fauna of Scotland*, "Mammalia," p. 36, 1880).

But in all these records TAY has little claim to discoveries, and my task in this direction is comparatively easy.

Neill (as above referred to) gives the following account: "When the Loch of Marlee, in the parish of Kinloch, Perthshire, had been partly drained for the sake of the marl, some very interesting remains came to light, amongst others the skeleton of a beaver, and a pair of horns and some leg-bones of a Reindeer"; and these, as Mr. Harting says, are no doubt the same which are referred to in the old *Statistical Account* (vol. xvii. p. 478) as having been found in Mr. Farquharson's marl-pit at Marlee, which were at the time surmised to belong to the Elk (Harting, *op. cit.*, p. 69).

Attempts at re-introduction have not been successful, though at one time there seems to have been good reason to believe that the Reindeer was more abundant in Britain than the Red Deer.

There is an early account of the bringing over from Drontheim in Norway and landing at Leith of sixty-six Reindeer, as given in the *Scots Magazine* (New Series, vol. xi. p. 258) for August 1822. The old *Statistical Account* tells the tale how the Duke of Atholl introduced Reindeer at Dunkeld. Sir Matthew White Ridley brought them to Britain also. Fourteen were brought to Dunkeld at different times, but these introductions proved unsuccessful. Boyd Dawkins has told us that the Reindeer probably survived as late as A.D. 1159.

### Cervus dama, *L.* Fallow Deer.

Not indigenous. About the end of the eighteenth century, as stated in the *Agriculture of the County of Perth*, "the only Fallow Deer in the whole county are at Blair Atholl and Taymouth" (*loc. cit.*, p. 330). In 1812 Walker in his *Essays* speaks of the "menalled Deer," or spotted Deer (*op. cit.*, p. 508), "species in Scotia, *ut videtur exotica.*" Don follows with remarks as to its rarity, and being in a tamed state in Kinnaird and Panmure.

An interesting account of this species and its history and distribution in Europe will be found in the *Zoologist* for 1877, for March of that year.

The Honourable William Maule kept Fallow Deer at Panmure.

At the present time Fallow Deer are to be met with in many places, but principally in Perth, fed and confined—at times breaking out, however, and straying far afield. Thus, one almost entirely white or cream-coloured was shot here—Dunipace covers—November 14, 1895, but whence it came we have never been able definitely to decide. It had been seen several times, and known to haunt other covers, both to the east and west of where it was shot, in the ordinary course of a day's cover-shoot.

### Capreolus capræa (*Gray*). Roe Deer.

If Pennant was correct when he wrote in his statement that its distribution was restricted to the woods on the south side of Loch Rannoch, that being according to his account the furthest *southerly* point of its existence, and that being what we are accustomed to name the Black Wood of Rannoch, and a part of the ancient Caledonian Forest of pines, the question might arise, Would such a limited dispersal indicate a decadence in progress at that time? And, if so, would what we know of its much wider distribution at the present time point to a revival and resuscitation when planting took place on a large scale, and woods became much more general through the northern portions of our area, as, for instance, in Atholl and elsewhere, about the end of the eighteenth century and afterwards? In this connection the Roe Deer is distinctly stated to have been at one time indigenous in England, but to have become extinct as a wild animal (consult Harting, and Eagle Clarke, Yorkshire). Whilst not altogether accepting Pennant's dictum, I think the chronology is worthy of some attention.

Following up this suppositious argument, and to quote further, the old *Statistical Account* in 1791 (vol. vi. p. 362) says: "Said to have appeared seven years previous to the date of 1793 at Little Dunkeld parish (*auct.* the Rev. Alexander Stuart). And the same *Account* (vol. xx. p. 472) says of Dowally parish: "Are abundant here, being at one time nearly extirpated. They obtained a jubilee for a term of years, and now are often to be heard and seen in the woods."

But in 1813 the Sidlaw Hills, Glamis, and near Forfar are given as still holding Roe Deer by Don.

In 1793 (the *Agricultural Survey of Scotland,* under Kincardineshire) the Roe Deer is spoken of as a declining race thus: "A few remain and breed in the woods of Kingcaussie, on the south side of the Dee, and in severe winters they are also found in the forests of Upper Banchory," *i.e.* partly in Dee and partly in Forfar.

For much earlier history we cannot do better than refer back to articles written by Harting, and still later by Millais.

At the present time it is everywhere abundant in suitable quarters.

Of its more recent history it seems almost sufficient to indicate its abundance and wide and general distribution in all parts of the area which are suitable to its habits, so that its present status in the country has returned to the former state of things.

In the portion of Fife which comes to be considered under TAY, Colonel H. W. Feilden tells me the Roe was tolerably abundant about the Howe of Fife, and he adds: "I have seen two does and three or four fawns and a buck or two just outside the Mount Hill Wood of Rankeillour in the early morning." This dates 1850.

However scarce it would seem to have been in the extreme east of our area, *i.e.* say through Strathmore, at the end of the eighteenth century, it appears, if not numerous, to have been at least widely distributed along the valley of the Tay by that time. And I can readily realise the increase to have been rapid after a few jubilee years were granted to assist in the increase.

I have known it to have been, in 1860 to 1863, and still to be, abundant along Deeside, and Mr. J. Milne assures me of its now being in numbers among the Drumtochty woods.

All through our area it is now too abundant to warrant the occupying of more space at the present time. I may simply illustrate this fact by quoting Mr. Malloch's returns of numbers sent in to him for preservation during a few years, which he permitted me to copy from his registers. In the season 1893-4 he got 20; in 1895-6 he had 38; and in 1897-8, 40 were sent to him for preservation.

Close to the southern borders of TAY I have seen eleven shot in a day's cover-shooting, and many times four or five within the last fifteen or twenty years.

Often Roe Deer being decidedly destructive to young plantations, proprietors who are planting to any extent have them temporarily killed down, but they soon appear to recover their numbers, and in a few years again become as numerous as before.

### Wild White Cattle.

Any attempt to give minute details of past distribution cannot, I think, result in much usefulness here, because that has been written over and over again. Pennant's long-time remark, quoting from older authors such as Boece, seems sufficient, viz.: "In Boetius' days wild everywhere," etc., and Sibbald says that in his time, "a wild white breed was found in the Scottish hills." However that might be, Pennant brings their history up to date of his writing by saying: "None at present found unconfined"; and he then mentions that "the offspring of the original breed (are) still preserved in the parks of Hamilton and Drumlanrig, and also in that of Chillingham in Northumberland."

In TAY I may give a few records to preserve continuity.

Newburgh, Fife, a skull (Dr. J. A. Smith in *Proc. Soc. Antiq. Scot.*, vol. ix. p. 587), figured.

Of the remnant of the herd which was at Atholl, some were sent to Taymouth, and the rest to Dalkeith; but both these lots are extinct, though from them descended the half-wild herds at Kilmory, Argyllshire, the property of the late Sir John Powlett Orde.

*Obs.*—Remains of Ox and Goat were found during excavations in the centre of Perth city at a depth of some eighteen feet, but these were associated with green glaze pottery of the thirteenth century. These have not been submitted to an expert, but are probably from a "midden," or refuse-heap, of an old tannery, Perth city having been at one time famous for its leather manufactory.

## Order **RODENTIA.**

### Family **SCIURIDÆ.**

### Sciurus vulgaris, *L.* Squirrel.

I intend in this article strictly to confine my remarks to the history of the animal as relating to the Tay Basin and Strathmore; but in order to render this account complete, I will necessarily require to go back and trace the advances made from the earlier introductions to the south of FORTH and CLYDE, from which centres the first Squirrels reached into our presently treated of area. The following account will therefore simply be a short epitome of my previous article, which occupied some 190 pages of the *Proc. Royal Phys. Soc. Edin.*[1]

Leaving out all the topographical matter, and all the merely traditional evidence, as well as the geological and heraldic materials, to which I had devoted some eight pages, I pass on to the historical portions which relate to the area; and I will then give a short *résumé* of its progress since its introduction at centres south of TAY, and of the results of that at Dunkeld. This, with references to the more complete paper, I think will suffice for the purposes of this volume.

The Squirrel is referred to in our oldest and most popular Gaelic song, that of the *Lament for Macgregor of Ruaro*, which may safely be dated as prior to 1650, from evidence already adduced which it seems unnecessary to repeat here. This was long, of course, before any thought had been entertained as regards the planting up of waste places. The country of the Macgregors at that time consisted of a vast territory, and comprehended the districts of Breadalbane, Strath Tay, and Rannoch, all in the bounds of the present county of Perth. Ruaro is situated in Breadalbane; and in Rannoch was, as it still is known by, the famous *Coille dubh Raineach*, or Black Wood of Rannoch, one of the remnants of the great Caledonian Forest of pines. And these forests stretched in almost uninterrupted miles, and joined with those in the Black Mount Deer-forest and Argyll, where remnants are still (1906) in evidence (*op. cit.*, pp. 48-9).

For Forfar and Kincardineshire I could find little or nothing of ancient history with regard to the species, nor since I first wrote the article have I obtained any, except the most general data regarding the increase throughout the Vale of Strathmore.

Coming to the consideration of the restorations in the south of Scotland which afterwards influenced their first and subsequent appearances in Fife and in Perth, I pass on to part iii. of the longer paper (pp. 115 to 165), and then to Clackmannan and the south portion of Perth at p. 138.

Having been introduced at Dalkeith in Midlothian by Elizabeth, Duchess of Buccleuch, "not prior to 1767," and "probably between that date and 1772 or 1773"; and having made its way from that centre, and also in all probability, in part at least, from the later introduction at Minto in 1827, and reached west and north through Stirlingshire, it was first noticed in Clackmannan on June 20, 1837, and had become numerous by 1841. Then the earliest date I have for the Fife side of the Firth of Forth, in the county of Fife, is 1825, when they appeared on the estates of Lord Rosslyn near Dysart; and, by another witness, not before 1834. The following lines I quote fully, as they indicate an excellent "stepping-stone" in our chronology.

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[1] *The History of the Squirrel in Great Britain* (Edinburgh). It was also separately printed by Messrs. Macfarlane and Erskine, Edinburgh, being a reprint from the *Proc. Royal Phys. Soc. Edin.*, 1880, vol. v. pp. 333-48, vol. vi. pp. 31-183.

Captain (now Colonel) H. W. Feilden, writing to me under date of 15th December 1878, gave me the full account of the species in the East Neuk of Fife.

He says: "Thirty years ago there were no Squirrels in the East Neuk of Fife, *i.e.* say in 1848. They had not extended as far as Kinglassie Wood, a large fir- and spruce-covered area which lay between St. Andrews and Crail. Neither were there any Squirrels in Airdrie Wood, not far from Crail. The absence of these animals in the East Neuk thirty years ago was impressed upon my mind by my father bringing a couple of dead ones from beyond Cupar. These were stuffed and cased in the hall of Cambo House, Sir Thomas Erskine's residence, where we then lived." Colonel Feilden then goes on to say: "Five-and-twenty years ago (say 1854) they were very numerous in the Howe of Fife, *i.e.* the fertile strath drained by the Eden, to the eastward of Cupar. They were abundant amongst the timber of Rankeillour Park and the large woods which clothed the Mount Hill, an eminence in the parish of Monimail, on which the Hopetown monument stands. They were common in a large wood near Springfield, at Lower Rankeillour (Creighton Macgill's), in the woods around Ladybank Junction, and at Melville (Lady Elizabeth Cartwright's). I never remember seeing them at Wemyss Hall (my uncle's, now my cousin's). I cannot help thinking that Squirrels were found at Birkhall (Wedderburn's) near Taymouth; but remember it is now twenty-five years since I lived in Fife."

To this Dr. Mackintosh of St. Andrews adds, under date of 1879: "Twenty years ago (say 1859) they were abundant all over the county of Fife." But at the time I wrote, even then the extreme East Neuk of Fife did not appear to have participated in the dispersal. They had, however, certainly arrived at Newburgh on Tay (1879).

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Now they reached by the Frew Bridge across the river Forth to the west of Stirling into the county of Perth (p. 141); and the whole of the south of Perthshire, whether within the boundaries of FORTH or within the boundaries of TAY, no doubt owes its Squirrel population to the introductions of Dalkeith and Minto. These restorations may indeed have affected their dispersal as far or even farther (?) than Monzie parish. By 1821 they had crossed the Forth river, as above indicated. It remains, however, not perfectly established that these extensions may not have been from the earlier introduction at Dunkeld, though the distance is considerably greater (p. 142).

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We now take up the Dunkeld introduction some time prior to 1793. "It was introduced at Dunkeld by the late Duke of Atholl, and has unfortunately done much harm to the singing birds" (*New Statistical Account*, p. 619). By 1798 they were numerous there. The first ever seen in Breadalbane was in 1828. But it is right to mention that in Campbell's somewhat full list of the animals of Dunkeld in his *Journey from Edinburgh to North Britain* (vol. i. p. 270) no mention is made of the Squirrel. That was at the date of 1811.

The animal was never introduced into Taymouth nor to any part of Breadalbane, and was only introduced by the fourth Duke of Atholl at Dunkeld prior to 1793, and by 1798 had become numerous there. The fourth Duke had succeeded to the dukedom in 1774, and he died in 1830. The idea cannot be entertained that any remnant of the old occupation by Squirrels held out in the old Black Wood of Rannoch, though some of my correspondents seem to think this possible. All available dates of advance make such a belief of very uncertain value. There is no doubt that from Dunkeld they spread southward with much greater facility and rapidity than they did from the later introductions in the south, and the reasons for this departure seem easy of explanation when one realises the bare and inhospitable ground which at that time extended both to the north and to the north-west of, say, Atholl, and when the well-wooded acres and easier openings towards the south and both east and west of that are considered. Here again I may lay some stress upon the possibility that the influence of the Dunkeld introduction may have had more influence than I am quite willing to accord to it, at least in the west. However that may be, there is little doubt that they "burst outwards" both in an easterly and in a westerly direction—into Strathmore by an easterly route, and away into Breadalbane up the Tay valley, etc. But it was not till 1841 that they became abundant at Blair Atholl; while

Mr. J. Colquhoun, while renting the shootings of Kinnaird in 1836, found Squirrels were there and abundant. About fifteen years later Mr. Colquhoun saw a large table-cover containing some two hundred Squirrel skins shot at Taymouth. They had been killed there about 1848 and 1849. The Marchioness also had a stall at a bazaar in Perth, and had about five hundred Squirrel skins for sale.

But by 1879 it was reported to me that "there was not one Squirrel for a hundred there were formerly." Sixpence per tail was paid at Stobhall during eighteen years, and about a hundred were killed annually.

Now they reached into Glen Dochart by 1839, but this may have been by an extension from the south-east (p. 145), though it is difficult to be altogether assured of this. Possibly both influences had a bearing upon it (see argument at p. 146 of the monograph). Shortly, my argument at that time, and I cannot arrive at more definite conclusions now, was that it was *as* likely that the wave from the south and south-east from the Dunkeld introduction had not passed beyond Methven between 1812 and 1845 in the directions of Crieff and Monzie, but had rolled on in greater force in a more north-easterly direction, and that those Crieff and Monzie records apply really to an offshoot of the Dalkeith army of occupation, indicating perhaps the furthest extension that the Dalkeith and Minto army had attained before mingling with the Dunkeld southern extension.

The first in the Carse of Gowrie is given at 1822. Comparing this date with the extension in Fife leads to the conclusion that this arrival in the Carse of Gowrie was due to the earliest introduction at Dunkeld, rather than to the approach from the west round the base of the Ochils, or to an approach round the bend of Tay below Perth from the Fife side.

In Forfar Don had no account of it in 1813. But in 1897, misprinted in original paper as 1817 (p. 148), a somewhat disturbing influence comes to be recorded, viz.: In that year Captain Mackenzie of Arbroath remembered that some of his crew brought over eight or nine Squirrels in small cages about fifty years ago (say 1829), and that some, he was sure, escaped about Arbroath; and he and others tried to catch some of them in Guymel plantation (p. 148). Whatever became of these few escapes, we have no information which allows of our arriving at any conclusion that they in any way affected the populating of Forfarshire. By 1833 Squirrels had arrived at Glamis, and by 1843 they had become plentiful, and were reported from the parishes of Ruthven and Airlie, also in Kinettle, though "*seldom to be seen in adjoining parishes.*"

Finally, for purposes of this volume, Squirrels appeared in Aberdeenshire, coming from Forfarshire, about 1856.

Even in 1879 Mr. Paterson of Dalnaglar in Glen Shee considered that though they had appeared there by that time, the glen was *too cold* for them in winter, and "that they leave Glen Shee when winter sets in and retire to the lower districts—at least," he adds, "they are not seen till May."

Here ends the information I had in 1879.

None of the old accounts have any notice of the animal in Kincardine, and Sim is our authority for the first recorded appearance in DEE (v. *Fauna of Dee*, p. 65).

In Fife, to return to the south of our drainage area, Colonel H. W. Feilden in a later communication tells me, after repeating his previous account: "I can well remember these matters, as I carried a gun from 1846, and I never shot a Squirrel till I came to Rankeillour in 1850."

In my larger account of the wanderings of the species through Scotland (p. 157), I think I have conclusively shown that Strathspey was not in any way indebted to Dunkeld for the increase of Squirrels there, but that this was due to an abundant resuscitation in the district itself, which in turn was due to the great increase of planting which took place there, following the example of those at Dunkeld and Atholl. I also combated the opinion expressed by some of my then correspondents that Speyside was indebted to the introduction at Beaufort Castle in Ross-shire (1844), for reasons which I need not repeat (see argument on pp. 157-9 of monograph).

The winter of 1878-9 was one of extreme severity, and almost suddenly there was a vast increase in the numbers of the Squirrels which were found around in the neighbourhood of Perth and all down the valley of the Tay.

Some previously noted severe winters were those of 1740-1, when the storm continued for five months; 1795, when 1000s (*sic*) of sheep perished and some of the shepherds lost their lives. There were also severe winters in 1794-5, 1796-7, and 1798-9. What influence these had directly upon the Squirrel population can scarcely now be satisfactorily traced, but it must be remembered that the areas of wood and shelter at these early dates were far more circumscribed than they are now at this later date of 1878-9, and at the present time (1904). And now, as I write—early winter weather in November followed by an *open* winter, but by a cold spring and late but warm summer—it remains to be seen whether we can trace any effects, and have them more carefully recorded than was the practice a hundred years ago, or even has been the practice among our professional meteorologists,—that is to say, whether our meteorologists will see their opportunities of putting causes and consequences on a more satisfactory and more scientific basis than the mere bare returns of dry- and wet-bulb statistics. (See some remarks on this point further on under Song Thrush, p. 62.)

Mr. William Evans has, in his *Mammals of the Edinburgh District*, conclusively shown that the Squirrel breeds in spring, and it is now indeed many years ago—somewhere about 1860—that I became well aware of it, having myself taken young Squirrels from the "drays" in Torwood Castle grounds, some of which I kept alive.

Mr. J. Milne gives distinct evidence of the carnivorous propensities of this animal, and indeed such may surely now be generally known by field naturalists and accepted by closet naturalists without further discussions in the papers.

Squirrels are mentioned in many of the vermin returns. I give those of Atholl as having some general interest in our work just now. Between 1891 and 1903, 3069 were paid for. The most were killed in 1897-8, viz. 426; then 419 in 1900-1; and 402 in 1901-2. The smallest numbers were got as follows: 186 in 1903-4; 224 in 1894-5; 255 in 1899-1900; and 270 in 1902-3.

In a list of vermin killed on Drumtochty, of date 1904, 108 Squirrels are included. This Mr. J. Milne designates as "rather surprising, considering that it is more than fifty years since I first saw them here. The first I saw were in the woods of Charleton, near Montrose, about the year 1856, and since that date they have been seen here year by year. They have increased very much." Since then Mr. Milne has told me, however, that an old forester—wood-forester—told him that he had seen them on Fasque ten years earlier, say 1846, than he (Mr. Milne) had seen them. Mr. Milne adds: "That being so, it is very possible they had been here as well." Millais has twice seen a Squirrel swim the Tay, and once one came down the stream upon a log, but in this case it was evidently quite in a fright at its position. He made for, and safely reached, the shore. This was at Stobhall.

Since I wrote my monograph I have also seen a Squirrel make the attempt to swim across the Forth near Kippen, a little to the west of the Bridge of Frew. Failing in its first attempt owing to my presence on the bank he wished to reach, he desisted. I "skugged" until he thought the coast clear, and then, after much hesitation at different places, at last swam over, and landed safely not very far from where I was hiding.

The latest to date note I can add is quoted from the *Glasgow Herald*, and refers to a more northern area (MORAY), viz. "At a meeting of the Ross-shire Squirrel Club it was reported that during the past year (1904) 3988 Squirrels were killed on the estates of members, as against 4727 the previous year. A proposal to extend the area of the Club, fixing the Caledonian Canal as a southern boundary, was approved, if the proprietors of the estates in Inverness agreed." Alas! few besides sentimentalists, I fear, can be expected to say many good words for poor "Skuggie."

### Castor fiber, *L.* Beaver.

Giraldus has it that the European Beaver was found on one river only in Scotland, and Hector Boece (1526) speaks of it as frequenting Loch Ness; but Dr. Robert Brown throws doubt upon that statement (cf. Harting, p. 41), because no mention appears in an Act dated 1424, which, however, alludes to "mertricks, foumarts, otters, and toddis." But again there seems to be acceptance in there being an old Gaelic name for it of the "Dobhran loslethan," or Broad-tailed Otter. The Rev. Dr. Stewart, of Luss, also a most excellent Gaelic *scholar*, mentions a tradition regarding the occurrence at one time of this animal in Lochaber.

The brothers Stuart, also excellent Gaelic scholars, or at least who spoke it as their native tongue, believed in its previous presence under the name of "Dobhar Chu" (*i.e.* Water Dog), a name, however, about which there may well be doubtful application.

Of actual TAY localities the Loch of Marlee, Kinloch, may be instanced. (See Dr. C. Wilson, *On the Prior Existence of Castor fiber in Scotland*, and Dr. Neill, in the *Memoirs of the Wernerian Society* (1821, p. 207).

On the re-introduction into the island of Bute I do not enter here, as that will, no doubt, come to have its history fully written when the *Vertebrate Fauna of Clyde* is finished.

## Family **MURIDÆ.**

### **Mus sylvaticus**, *L.* Long-tailed Field Mouse.

There remains scarcely any doubt as to its universality of distribution both in time and area, though actual records are not absolute nor efficient for the earlier data. Their distribution is now at all events very general even to summits of considerable altitude. Thus, as long ago as 1848 Mr. Archibald Hepburn records that he found it on the top of Mam Soul in Inverness-shire, *i.e.* between three and four thousand feet above the sea (*Zool.*, 1848, 2010, etc.). It is found also almost down to sea-level, and in all carse and dry-field lands. In some seasons they are very much more abundant than in others, like many of our smaller mammalia which are capable of frequent birth-giving and procreating large families.[1]

To take recent instances of unusual increases, either locally or generally, 1898 was a year when they did great damage in north-east Forfarshire. Mr. Milne relates that he killed seventeen in a greenhouse adjacent to an aviary, the "beasties" having no doubt been attracted by bird-seed lying about. This is no uncommon experience, but varying only with the seasons. The Long-tailed Field Mouse or Wood Mouse is quite as much a frequenter of gardens and vineries, and stables and outhouses, but is less commonly captured within dwelling-houses—in fact, anywhere that feeding is most available in winter. The Field Mouse becomes the Steading Mouse about October or November, after the growth outside ceases or the supply of outside food begins to fail. This change of habit may even take place by the end of September in some seasons. They increase in numbers just as we have early or late approach of winter, or an early husbanded or a late harvest.

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[1] There are many interesting notes in this connection by Herr Prof. Robert Collett of Christiania, which are well worthy of consultation, whether in regard to the migrations and periodical increases of the Lemming in Norway (*Lemmus norvegicus*), or of other small mammals.

This paper gives, amongst other matter, a list of the greater Lemming years in Norway. And it will be found valuable and interesting to such as may take the trouble of "putting two and two together," not only as regards Lemming and Vole plagues, but also as regards the periodical visits to this country of certain birds of prey—such, for instance, as those of the Rough-legged Buzzard, etc., *q.v. infra.*

### **Mus musculus**, *L.* Common House Mouse.

"Abundant, universally distributed wherever there are human habitations." So said Mr. Eagle Clarke in his excellent *Fauna of Yorkshire*, and indeed this may be the record for all great Scotland also. The only thing left for recorders as to its distribution now, appears to be to look out for developing sub-species. There is not much chance of that, I fancy, upon our present area, as there are scarcely any islands upon the coast, and none at least which are inhabited.

### **Mus rattus**, *L.* Black Rat.

Without going into the general history of the old English or Black Rat —not confusing it with the Black Water Rat, so-called—or Black Water Vole, I merely go back to tangible proofs of its former occurrence in TAY and Strathmore.

In 1812 Walker, in his *Essays*, speaks of the Black Rat (*vera*); and it must have been at that time either well known or well remembered in many parts of the kingdom. Indeed, in the following year, 1813, Don speaks of it as "the only species frequenting the town of Forfar," and as "not rare in all the inland parts of Angus"; but then he goes on to say: "It has become very rare in most parts of Britain, and is still becoming scarcer, as the Brown Rat has nearly extirpated it."

It would have been interesting to a good field-naturalist living then to have noted the process and details of the progress of the annihilation, especially in the initiatory stages.

The old *Statistical Account* has little of reliability in its account of the species.

The *New Statistical Account* only speaks of its extermination by the other and more recent arrival, quoting, in fact, previous writers who were unanimous in such statements. The *New Statistical Account* mentions Dunotter as a former haunt; and includes it, but without remark, as an inhabitant of Banchory Ternan—a part of which lies within our area for purposes of this volume. It is also spoken of in the parish of Fortingal, Perthshire, as "having forced its way of late into our most sequestered glens, and even to our most retired apartments." As may be shrewdly argued, it did not so much *force itself* as it was *forced by* its bigger relation thus to seek safety in the furthest recesses.

Many other localities are noted as formerly holding the species in these volumes of the *New Statistical Account.* Thus: St. Madoes (p. 619), and "it has disappeared from the parish of Kincardine" (p. 1251). Also included in the list of animals of Careston parish (p. 523).

Coming to later inquiries, Mr. J. B. Smart had no recollection of it in Careston parish when he wrote to me in 1880.

In a very long-conducted commonplace-book of mine I find innumerable accounts of the occurrences of this now rare animal all over Scotland, *but very few of these are of the least use, or can be relied upon at all.* I need scarcely refer to these here, as they remain in my own possession and have not been published, so cannot lead any one astray; but I may give one or two instances, if only to show how inextricably the Black Rat (*Mus*) gets mixed up in the popular idea with the black variety of the Water Vole (*Arvicola*, a totally different genus, not to say species). Thus, one correspondent relates that he killed eight Black Rats in July 1879, but subsequent letters and information put these out of count. Another has it thus: "A true Black Rat was killed on Wednesday 25th in a barrel covering some early spring rhubarb at the manse of Methven, and was seen by my correspondent, Mr. R—— C——, since deceased." One more and I have done: "The tenant of Leuchars Castle (Fife) reports a colony of the Black Rat appearing in a wood three years ago (*i.e.* prior to 1880) near that residence. They have now disappeared." My correspondent continues: "He is aware of the specific difference between this and the Black Water Rat, which is not uncommon." Needless to say, not in one single instance had I ever been able to see for myself any one of the many so reported to me. None had been preserved.

I have, however, on more than one occasion had specimens of *Mus alexandrinus* sent me both from seaport towns and from ships in harbour or at anchor, both commercial and vessels of His Majesty's navy, though I have not pursued the subject of late years.

Mr. W. Evans has had similar experiences very many times of so-called and reported Black Rats and "true Black Rats." He was assured of a "colony of the old Black Rat at a locality in Forfarshire" (Drumlithie); but investigation brought out the usual result—they were merely Black Water Voles. This was in 1905. And in the collection of Dr. Dewar at Arbroath I saw one which had been caught on board a vessel in the harbour. This one was jet black in colour, not the blue-grey which Millais ascribes to the original form of

British Black Rat (*British Mammals*, vol. i. pp. 203-18). Such as I have received from vessels at anchor have been blue-grey in colour, and I had several of these from H.M.S. *Devastation* when she was anchored at Queensferry, above the Forth Bridge. If the original British Black Rat was of a blue-grey colour, then the many accounts received of its occurrence of late years clearly point to the black variety of the Water Vole; but if, as is said, the old British Black Rat was not black but blue-grey, then these innumerable statements would hardly have included the name as BLACK RAT! for by no colour-blindness could these two colours have been confused.

**Mus decumanus,** *Pall.* **Brown Rat.**

Regarding the "ancient" history (?) of this animal, I do not think it is necessary to go over ground amply covered many times by others. Mr. William Evans in his *Mammals of the Edinburgh District* practically refers to all important previous notices.

In 1812 Don relates of it "Common in all the seaport towns of Angus" (see also under last species). It appears not to have reached the inland town of Forfar, so it is reasonable to argue, and natural to expect, and perhaps positive as a fact, that the Brown Rat spread upward and inland from the seaport towns, driving the old Black Rat before its superior assertiveness.

But the old *Statistical Account* includes it in several inland parishes, such as Dowally (vol. xx. p. 472, 1793); and now it is a pest and horrid vermin all over the country, assertive and successful in the struggle for existence. What to do? I would like to be able to trace out all its advances, but that, I fear, is now beyond the endeavour of the most enthusiastic compiler!

In the Breadalbane vermin lists no Rats are returned; but it may be worthy of remark, or it may not, that there are at the same time no returns of Owls in these lists. Whether this has any real significance or not, I am scarcely in a position to certify; but one thing I do know, and that is that on one fine Highland estate—not, however, within the boundaries of our present area—where it appears, that the more Rats are killed each year, the more Owls are killed; or to put it the other way, the larger Owls bulk in the slaughter, the greater are the number of Rats also! And I would not be surprised to learn some day—or to be refused further information!—that the bigger does the annual bill bulk for Indian corn and feeding stuffs for the Pheasants and tame Wild Ducks, just as the tale of Rats increase, and the number of Owls decrease!

### Sub-family *ARVICOLINÆ.*

**Arvicola amphibia (*L.*). Water Vole.**

Very often indeed is the black variety of this animal confused with the true Black Rat—as already pointed out; and often I have found it no little trouble to sift the grain from the chaff.

The brown and black varieties of this species are both well represented and fairly well balanced in their respective numbers and distribution, both as regards the actual proportions of their numbers and the comparative dispersal. I am scarcely in a position to pronounce any dictum. My own impression is that the black variety is more abundant in the country north of our present area than it is within it; but this belief is subject to more minute investigation and an increased number of specimens from a more extended series of localities of records. There are other varieties in coloration, but not of great importance, and there is also a difference in the density of the pellage in individuals which may require looking into.

Around Perth the black variety is usually found, but a white (albino ?) specimen has obtained a resting-place in the Perth Museum.

Mr. J. Milne considers the species to be of less common occurrence around Auchenblae than formerly (at date of 1902), and at Fordoun and on the Luther Water, but he does not assign any supposed cause.

**Arvicola agrestis, *De Selys.* Common or Short-tailed Field Vole.**

This name, while descriptive and good, is, however, hardly an efficient one, as has been pointed out by Mr. W. Evans (*Mammals of Forth, etc.*), if its numbers are to be compared with its nearest congener. That is, *A. glareolus* is more strictly a lowland and woodland species than *A. agrestis*, the latter being found even to the tops of our highest mountains, as recorded by Mr. Bruce on the summit of Ben Nevis in 1896 (*Annals Scot. Nat. Hist.*, 1896, p. 187).

1876 was the date of the historic Vole plague on our Borders. Then followed 1883, and finally to date 1891, when the Board of Agriculture reported upon the latter in 1892, and a Royal Commission *went to Greece to investigate into its causes!*

Of its distribution there is little to say except that it is almost universal over the area, even going up, as already shown, to the highest summits. Of its general distribution, it seems only necessary to say that it appears to be almost everywhere sought for; and actual absence is more difficult to prove than presence. But in this connection it may be worth while to mention that it was only after considerable time spent in trapping that *A. agrestis* was found to exist in certain portions west of the watershed, as, for instance, in the Loch Awe district of Argyll by Mr. C. H. Alston in 1904-5. It would therefore be premature to assign a positive value to its population in *all* parts of Scotland at this date of A.D. 1905. Very likely in a short time there may be great changes in the universality of its distribution over the whole of Scotland, and then of course it will become more and more difficult to decide the antiquity of the race in the country.

**Arvicola glareolus** (*Schreb.*). **Red Field Vole or Bank Vole.**

This closely allied form to the last is, or has been, generally considered as more local in dispersal than its congener. Certainly it has, so far as absolute returns show, a more restricted range; but perhaps its distribution would be better described as differing from the others, as may be said to have been already pointed out. To put it thus: Rather of a different distribution, as shown under the last-mentioned species and illustrated by Mr. Evans. Always a species preferring the shelter of woods, it still remains in them even in winter, and does not seem to wander far afield. The Bank Vole shows a decided preference for dry oak coppice, but is also found in old or young fir woods.

### Sub-order *DUPLICIDENTATA*.

#### Family **LEPORIDÆ**.

**Lepus europæus**, *Pall.* **Common or Brown Hare.**

The Brown Hare does not appear to have been of very general dispersal in the more Highland portion of our area in times past, or otherwise our information is awanting from many parts. The old *Statistical Account*, however, mentions it in several parishes. It is stated, on the other hand, to have been wonderfully abundant in Forfarshire and along the south slopes of the foothills of the Grampians, as well as in the low grounds, and formed, in the days of the Agricultural Survey, the principal food of the Fox.

At the present time, and since the Ground-Game Act was passed —*the thin edge of the late Gladstone wedge*—the Brown Hare has become almost extinct in many parts of the low grounds, and especially in the heavy carse lands. It would almost seem that the poor Hare has no friends, and therefore "Hit him hard" is the order of the day. The young are pounced upon in the summer-time, chased, and never get rest or peace all the remainder of the season from loose ranging farmers' collies, chased at night and netted at the gates by poachers, snared at all times, shot upon the hill-roads when snow covers the hills, or in the hill-farm gardens, and also slain in hecatombs at the big shoots—with about as much sport as *shooting sheep* or *driving deer* or *sticking pigs in Chicago!* It is indeed a marvel that any remain at all. Never was a more unfortunate piece of tinkering legislation passed. It used to be at one time the test of a good gamekeeper to find the Hares numerous. Now I consider the test lies in the weight of such Hares as are left, as proving that they at least are kept fairly quiet and not "run down" persistently.

*Obs.*—Hybrid Hare. The late Rev. H. A. Macpherson mentioned to me (*in lit.*, Sept. 9, 1895) that he had a photograph of a Hybrid Hare lately killed near Crieff, and said he would send me a copy. This, however, was forgotten.

## Lepus variabilis, *Pall.* Varying or Blue Hare.

The late Mr. John Colquhoun has a somewhat significant note in his lecture on the *Feræ Naturæ of the British Isles* (1822). He there speaks of the rarity of the Mountain Hare on the hills about Ben Vorlich, and relates that on several occasions he had ascended Ben Vorlich and surrounding hills in search of Ptarmigan and other sport, and speaks of the "Hermit Hare" of Ben Vorlich—a "solitary hermit."

But the old *Statistical Account* antedates this evidence of its presence, and tells of it occupying lands further to the west and not uncommonly.

Again, by 1873, Mr. Colquhoun says they are now "swarming on Glen Falloch and Corynge"; and speaks of them as having "descended in force on Arrochar and Glen Douglas," and "numerous in Glen Luss and Glen Fruin" (CLYDE). See also the account of this species in our volume on ARGYLL.

At the present time the White or Blue Hare is very abundant over most suitable ground, and especially among the mountains which surround Glen Lyon and Glen Lochy. It is found abundant also on many lower-lying moors, such as the Moor of Rannoch, and even comes down to cultivated lands at times; and this has become a practice of much more frequency of late years, say within the memory of people now living—myself among others. It may prove of some interest to those who work out the southern districts of Scotland in continuation of this series, to trace the migrations of this animal to the south of TAY. Such, if done carefully, can scarcely fail to provide some elements of interest.

**Lepus cuniculus,** ***L.*** **Rabbit.**

In the earliest printed book relating to the county of Angus, Rabbits were stated to occur "in many places" (*The County of Angus*, by Robert Edward, minister of Murroes, 1678; reprint of 1853, p. 21).

In 1798 the old *Statistical Account* instances a Rabbit warren near Dunkeld, in the parish of Dowally, which produced a yearly average of 125 dozens of skins valued at 6d. each, while the bodies were valued at 5d. per pair (vol. xx. p. 472); and the writer goes on to say that, to prevent injuries to trees, branches were lopped off and thrown down in the warrens. This had the desired effect; and the same holds good to this day—at least to some extent, but not likely so much so as then, because Rabbits were not perhaps so well educated then as they are now.

Robertson in his *Agriculture of Kincardineshire* distinctly says: "I have not seen any Wild Rabbits in this county" (p. 391), and this remark is brought down to the date of publication, *i.e.* 1807.

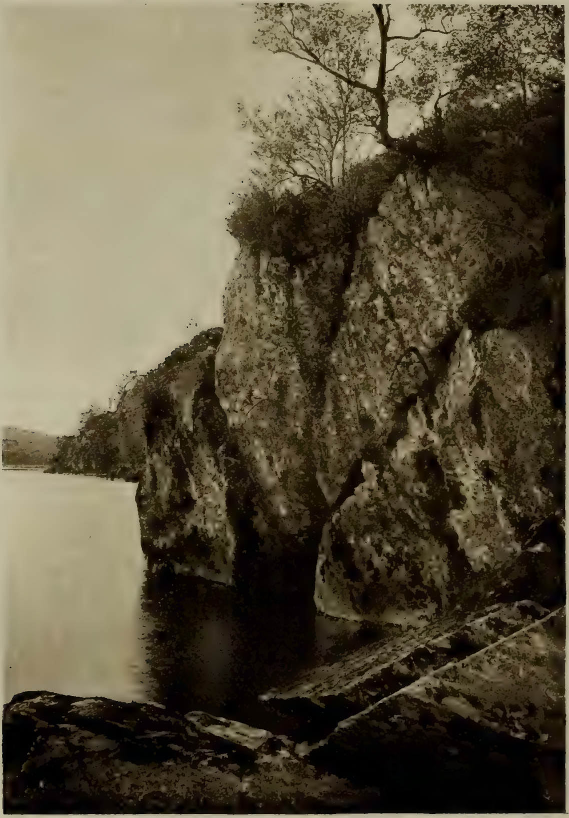
Don, in 1813, has it "rare in Angus . . . perhaps hardly a native."

Going back however to Perthshire, we find that in the *Agricultural Survey* additional localities are given of its occupation, as for instance at Stormont (Farquharson's), Glendoig, Carse of Gowrie, and at Lord Methven's estates near Perth. Also at Callander (FORTH). We also find that Rabbits were bred in considerable numbers by 1800 on the extensive links and sandbanks along the shores of Fife, and on several sandy tracts in more inland parts of the same county.

In the *New Statistical Account* (1843) it is stated that "Rabbits were introduced into the county of Kincardine about twenty years ago." This would make the date of introduction about 1820 or 1823. Mr. Milne tells me: "By the year 1840 I observed them to be quite common over a large district near Fordoun"; and he goes on to say: "I was well acquainted with the man, William Edward, who brought them on from Laurencekirk and thence by machine to Drumtochty, where they were given their liberty." Mr. Gemmel (the proprietor of Drumtochty) told Mr. Milne that one of his ancestors had first introduced Rabbits to that district, having brought a pair by coach from London to Laurencekirk. They were liberated on the Ruehills at Drumtochty, which at that time was clothed in young plantation. The exact date is not given, but coincides with the above notes. Mr. Milne also informs me that one William Ritchie, the carrier between Bervie and Auchenblae, brought a few more Rabbits from Lord Arbuthnot's place a little later, and those also got their liberty at Drumtochty.

Referring to prices and uses of Rabbit skins about 1834, and to an account in Starke's *Picture of Scotland*, Mr. Wm. Evans says: "Now (*i.e.* in 1892) skins are worth 2s. a dozen, and the bodies sell at 2s. 6d. a pair."

In the country the middlemen never give more than 2s. a pair, skins and all; and in 1892 only 1s. 9d.; in 1903 only 1s. 6d.; in 1904, 1s. 7d.; and the same in 1904-5.



DAUBENTON'S BAT-ROCKS ON LOCH DOCHART.

# Class 2. AVES.

With the view of drawing attention to a class of phenomena in bird life which I can scarcely think has received sufficiently distinctive treatment, I offer the following remarks for the better understanding of the faunal values indicated under the different species in the following list.

There are some birds which are obviously gregarious—that is, if we define that term as "flocking"—at all periods of their existence, both at their nesting quarters—*i.e.* nesting in colonies—and migrating in distinct "flocks" both in autumn and spring, and remaining in "flocks" all winter. Instances of these are not far to seek, and soon occur in the list which follows, *e.g.* the Fieldfare, and later in the list many other species, even to the Waders, such as the Red-necked Phalarope.

There are other birds which are quite as distinctly not truly gregarious, though they may, and do, "flight" over to our shores in vast numbers together. But these do not nest in colonies; nor do they winter in "flocks"; nor do they return to their nesting haunts in compact or visible "flocks," or even "flights." Amongst such I may instance Blackbirds among the Turdidæ, and Jack Snipe among the Scolopacidæ. I should here make my meaning plainer. I purposely distinguish between "flocking" and "flighting" as distinctive terms. Thus birds which truly "flock" together are collectively seeking the same purposes, whether of feeding or for protection. Birds which "flight" together may be, and often are, acting quite independently of one another; and this may often be easily realised by an intelligent observer. Here I may instance the "flights" of Jack Snipe, which, though coming over in great "flights" to our shores, instantly disperse, or at least rise and alight again quite independently of other members of the "flight." I will point out others during the treatment of species in the list. There are others again which nest apart, travel singly, or at most in family parties, in autumn, and again in spring. Of such I may instance the Grey Plover and Little Stint. These are rarely seen together in what can be designated "flocks," or even "flights," at any period of their life, and not upon their departure or return to their nesting haunts; nor can these be said to "flock" together during their midwinter sojourn. I may call these solitary! (The Great Snipe is distinctly not solitary in this acceptation, as I have witnessed their arrival at their nesting haunts in vast "flights," dispersing however at once on arrival.)

And there is yet another class of birds which are gregarious at all periods of their lives, except when for a very short space of time they separate for the purposes of nidification, etc. I may instance amongst such many, but select as well known the Snow-Bunting as an example. The Snow-Buntings keep in "flocks" from leaving their nesting haunts, gaining in numbers, and remain so close up to the succeeding breeding season. Amongst Waders I may instance the Knot and Dunlin.

The last I will notice is a small class of birds which seem to alter the whole circumstances of their lives upon the question of nesting in colonies, or nesting in decided seclusion in different regions or localities. Perhaps no bird so clearly illustrates this as the Osprey, which nests in colonies in the United States of North America, but in Europe, so far as I am aware, only in isolated pairs.

I hope these differentiations may be more clearly shown under the several species in the following list. And I hope those of my readers who attach any importance to the facts will consider them carefully as to any bearing that may be read into or from them upon the subjects of migration and distribution.

Besides the usual designations of faunal values in general use, I propose to add several others. Besides Residents, Winter Visitants, Summer Visitants, Passing (Spring or Autumn) Migrants, and Occasional Vagrants, viz.:—

Truly Gregarious, *i.e.* "flocking" at all seasons.

Not truly Gregarious, *i.e.* "flighting" at the migration seasons (spring or autumn, or both), but separating on arrival at their destinations, and acting independently of each other during the winter months.

Solitary, *i.e.* nesting separately, migrating separately, and remaining separately, or only in family parties, most of their lives, except possibly when "accident" or "circumstances" bring them together in certain places.

Partly Gregarious, *i.e.* entirely so, *except at the nesting season*, when they separate for the breeding-time.

So far as the present purposes require, I need not insist too much upon a class represented by the Osprey, though that fact may well be kept in view. I mean such few species which are known to nest in colonies, as the Osprey does in the United States or Long Island, but not at other seasons; or, to take a more familiar example, as the Heron does in this country.

## Order **PASSERES.**

### Family **TURDIDÆ.**

**Turdus viscivorus**, *L.* **Missel-Thrush.**

Not truly gregarious. Resident. Common. Breeds. Nests in the wooded districts. Never, or more rarely, seen in winter in the east, but is partly migratory in the upper districts. It is a naturally increasing species throughout Scotland over all suitable areas of our faunal divisions, but is sensitive to excessive or long-protracted cold in spring; consequently it becomes liable to severe checks at times upon its progress in dispersal.[1]

Mr. Bruce[2] speaks of it as formerly rare in the east of Fife, and he obtained his first nest, he tells us, some fifty years ago (say about 1845) in Stravithie Wood, "since cut down, and which stood near the present railway station."

By 1879 it was found to be abundant and increasing in the north-west of our area (Horn, *Proc. Nat. Hist. Soc. Glas.*, 1879, p. 56).

In Strathmore Mr. Milne marks it as resident, but not so abundant as formerly. This is given at date of 1903, and was, I believe, due to the late and cold spring and summer of 1902.

In latest summer or the earlier part of the migrating season Missel-Thrushes "pack" into large flocks near their nesting haunts, and frequent open fields or moory wastes, and are at that time wild and unapproachable (see previous volumes of this series, *e.g. Moray*, *North-West Highlands*, etc.). They are scarcely migratory at this stage, but are gregarious and in preparation for departure, *i.e.* at least the greater part of them, principally the young of the year. Mr. Robert Godfrey, instancing such an occurrence which came under his notice in Glen Ogle, says: "Abundant from the Col at Balquhidder in Edinchip as far as Lairig Eala."[3] Mr. Godfrey continues: "They roosted in flocks in the Glen Ogle fir woods. On July 31, 1904, I counted 115 (one hundred and fifteen) on a field of new-mown hay" (MS. of Mr. Godfrey in my possession).

My friend Mr. James Davidson marks it in his list of birds observed by him between June and November on the western borders of Forfarshire in 1900, 1901, and 1904, and on the South Esk at Finavon in 1902. He says: "Resident and common everywhere I have stayed; increases in numbers in August and September" (see above).

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[1] We were aware of a much more northerly distribution, for instance in the extreme north of Scotland, when one of these severe checks took place, and they had to retire before the colder temperature of a late spring and summer (v. *Fauna of Sutherland and Caithness*, under species).

[2] But in 1905 Mr. Berwick marks it as common and resident.

[3] Lairig Eala is at the head of Glen Ogle, at the watershed between the tributaries of rivers Earn and Tay.

Mr. W. Evans[1] found a few about Fearnan in July 1887.

In my personal inspection of the area in the early summer or late spring of 1905, I found the Missel-Thrush far from abundant in the glens of Perthshire; but on arriving at more eastern localities, such as Auchenblae and the hard-woods of Ethie, near Arbroath, they were seen quite abundantly. The spring and summer up to late in June were excessively cold, and east and north-east winds prevailed, and there was little warmth or sunshine until the summer was well advanced, nearly, indeed, as far as the last week in June.

Other correspondents' letters and notes bear out the facts above given as regards the fluctuations in the distribution of this species. In 1905 Missel-Thrushes were decidedly scarce in the central glens of Perthshire in May. But in the east, notwithstanding the cold east winds, they were more abundant, occupying the sheltered glen of Drumtochty and the hard-woods around Ethie in considerable numbers. In Strathbraan, Mr. Mackintosh appears to consider that their numbers have not varied much, about the same number of pairs occupying the same areas year after year, and *small flocks* being seen in the autumn.

By August, however, in the same year, a considerable increase was apparent—I mean taking into consideration any natural increase of young birds, which, of course, is to be looked for. My friend Mr. W. Evans found Missel-Thrushes in considerable numbers feeding upon the "rowan" berries in Glen Lochay, and in good-sized flocks about the bases of the hills generally, during a stay he made at Killin in August 1905.

### Turdus musicus, *L.* Song-Thrush.

Solitary. Resident. Common. Breeds. Locally migratory. Rarer in parts of the area, especially in the north and central. Thus it does not reside all winter in upper TAY. It is doubtful if a single bird resides in winter on the river Tummel, out of thousands reared there (*auct.* late Rev. H. A. Macpherson, MS. in my hands, as well as in a copy of his notes taken while resident at Pitlochry, and written into an interleaved copy of Yarrell's *British Birds* now in the Carlisle Museum).

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[1] Mr. W. Evans, of Edinburgh, has kindly furnished me with his MS. notes on birds observed by him: 1st, at Fearnan, Loch Tay, on 23rd, 24th, and 25th July 1887, and some notes in 1892 added; 2nd, notes at Edenmouth, Fife, 25th December 1886, and again on 31st May, and some other summer notes in 1885, with some records of rarities in different years, besides kindly assisting me in other respects. In 1905, also, I am indebted to him for some interesting notes taken at and around Killin in the month of August, which will be found frequently referred to.

Resident about Fordoun, but, says Mr. Milne, rarer than formerly, and scarcer in winter. Mr. Milne quotes a current belief that the higher above the ground a Song-Thrush sits to sing in the morning, the finer the day will prove to be. And he believes this can almost be assured. And the lower down the bird perches before commencing to sing, the worse the weather of that day will be. A gardener at Fordoun was very positive as to this, and Mr. Milne is quite inclined to think that "there is some truth in such observations made."

"Absent," says Rev. H. A. Macpherson, "all December 1900, and till February 1901. Then they returned in immense numbers. The first was seen on the 11th February, but the 'rush' came about the 19th, and many passed on." Mr. Macpherson then draws a comparison between the richness of tone and song of Thrushes and Blackbirds in the Hebrides and of those in Perthshire, very much in favour of the former, and assigns as a reason the greater scarcity of the birds, as for instance in Skye, and a consequent increase in power of voice in order to admit of its being heard at great distances. Perhaps may be added to this the greater silence and the more highly rarified state of the atmosphere. The general distribution requires no further detail.

During my survey of the greater part of TAY and Strathmore in May and June 1905, I could not help observing the very light coloration of these birds, especially in the eastern parts, and almost sandy colour of the upper plumage, in marked contrast to the darker, more olive colour of the same parts in this species in the Outer Hebrides, which I have before remarked upon. Why should Mr. Hartert not make these out to be a distinct race?[1]

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[1] I repeat about these differences in coloration of the plumage of the Common Thrush through our series, because it becomes more and more evident how historic teachings are forgotten, or blurred over, by many of our younger observers in the hurry of modern "discovery"; even those of Darwin being often relegated to the limbo "at the back of the world where the old moons lie." The effects of climate, and of isolation and climate combined, as taught in many past writings, ought to be considered of historic importance (cf. *Ibis*, 1863, p. 189). I may point out that this species very well illustrates three fairly distinct phases of coloration in Scotland alone, viz.: the very dark insular and western form universal in the Outer Hebrides; the ordinary olive-backed bird of our shrubberies and mainland hedgerows; and the very light sand-coloured bird of our eastern seaboard, as I have mentioned in the text.

### Turdus iliacus, *L.* Redwing.

A winter visitant, and many pass on in late autumn or early winter migration. Colonel Drummond Hay records seeing it near Pitlochry as late in summer as June. He refers also to Saxby's claim to have found its nest in Wales (*Birds of Shetland*, p. 64). Partly gregarious.

The old *Statistical Account* has no mention of this bird by name, nor do I find much in the writings of our earlier authors.

Mr. J. Milne refers to it in somewhat general terms similar to above.

Mr. James Davidson marks it as common and resident in winter on the borders of Perth and Forfar, and along with the next as arriving in some numbers at the end of October or beginning of November.

Similarly the Redwing is included in all lists from the Vale of Strathmore and eastwards, but seems of less certain occurrence, or in fewer numbers, in more westerly localities.

In May 1905 I saw in Mr. Malloch's workroom in Perth a curious pale variety of Redwing. I thought I had found a rarity; but I could not make it out to be anything other than a variety of the Redwing, though at first I had ideas of Siberian rarities.

### Turdus pilaris, *L.* Fieldfare.

Winter visitant. Common. Truly gregarious.

The old *Statistical Account* old Gaelic name given by the Rev. Alexander Stuart, of Luss, is *Liatroisg*, *i.e.* the Grey Thrush.[1]

The reported nesting of the Fieldfare in Britain and also a note of the nesting of the Redwing in Wales, have never been fully and satisfactorily proved. I have an account also from near Fordoun, but it is, like nearly all similar accounts, faulty and imperfect, and must, like all others, be rejected.

The Fieldfare, says Mr. Milne, is "only a winter visitant to Strathmore and the east of our area," and that represents its true status in Scotland at the present time. "Seeing may be believing," but the seer has also to be believed, and his abilities put to the test along with all other reporters' accounts.

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[1] The further back we go for authority for Gaelic names of animals, the more correct they will probably be found to be. The Rev. Alex. Stuart has always been considered a first authority in such matters, and also a naturalist of no mean capacity at the time he wrote his account of the parish of Luss (CLYDE).

We have not many old accounts of this bird by name. The old *Statistical Account* gives it place in the parishes of Weem and Monzie.

Fieldfares arrive as early as October in some years, but often much later, according to the state of the weather in Northern Europe, whence they migrate to our shores. Thus, in 1904 they did not put in an appearance in the midland portion of Scotland till the 19th and 20th of November, just before the strong storm of frost and snow began on the 21st, and which continued for some days.

J. G. Millais, in his notes upon distribution sent me for the purposes of this volume, places the occasional advent of the Fieldfare at an even earlier date. He says: "Arrives in large numbers, sometimes as early as September 25. During a Grouse drive on October 15, 1899, at Dunalastair, a constant stream of Fieldfares, numbering many thousands, passed my butt, and continued moving from east to west all day long."

I have always considered the Fieldfare to be a more abundant migrant to this country than the Redwing, and to penetrate at the same time further westward—at least in any numbers on the mainland. I do not here refer to its well-known appearances in the further western isles, and along the well-known migration routes; rather do I speak of the interior of the area, and the limits of the boundaries to the west, and of the comparative scarcity of the Redwing in the same places.

**Turdus merula**, *L.* **Blackbird.**

Not truly gregarious. Resident. The most abundant of the family. Breeds, and is increasing very rapidly; and is extending its area largely, especially of late years. It must be kept within reasonable bounds, as every gardener knows, if we are to have any small fruit at all, and if we are to protect our ripening pears and apples with any success. They are also destructive to large quantities of fruit besides what they use, and plums seem to strike their eye for colour more than most fruits. Netting even the wall-trees is often insufficient, as they soon discover a way in and a way out again, and become exceeding cunning at doing so, as I have often witnessed.

Many partial or complete albinos of this bird are often recorded. The following is perhaps worthy of mention. Mr. J. Milne describes one shot at Fordoun having a broad white band across the back of the head, and extending on one side as far as the ear.

**Turdus atrigularis**, *Temm.* **Black-throated Thrush.**

Rare. Occasional visitant.

The only one obtained is now in the Perth Museum. For a very full account of this rare occurrence, consult the original record by Col. Drummond Hay (*Trans. Perth. Soc. Nat. Science*, vol. i. pp. 135-8). After referring to the only other occurrence of the species in Britain, which will be found figured in Gould's *British Birds*, Col. Drummond Hay goes on to say that it was not until the early part of 1889 that he found trace of this Perthshire specimen, and after careful inquiry he ascertained the following facts connected with it. I give them in his own words: "I ascertained that in the month of February of the very severe winter of 1878-9, ten years previously, Mr. Robert Gloag, stone-mason, a keen observer of nature with a good knowledge of birds, as he was going down the road by the Friarton with his gun, was suddenly arrested by hearing the noisy call-notes of a couple of birds, which struck his ear as perfectly new to him. . . . He found them, and secured one . . . on a spit of waste ground running into the river, and covered with docks and wild sorrel, on the seed of which they seemed to be feeding." Col. Drummond Hay goes on to say: "Fortunately Mr. Gloag had the bird preserved, and gave it to his brother, Mr. John Gloag, living at Almond Bank, in whose possession it has remained ever since." The latter gentleman presented it to the Perth Museum, and it is now deposited in their local collection.[1]

Col. Drummond Hay gives a very lucid sketch of the known distribution and life-history of the species in its continental haunts —an excellent epitome of the subject.

The specimen will also be found recorded in the *Ibis*, 1889, p. 579.

## Turdus torquatus, *L.* Ring-Ouzel.

Old Gaelic name, *Dhubh craige* (old *Statistical Account*, *auct.* Rev. Patrick Stuart).

Summer visitant. Never noticed in the Lowlands by Col. Drummond Hay, even during migrations. Confined to the upper districts, but there of very general occurrence, and quite common. Arrives in April. Breeds. Abounds in the mountains. Descends in early autumn to the gardens of the hill-farms, and becomes, for a short time, destructive to small fruits. These are usually old birds, the young having for the most part departed previously. It is more restricted in its range than our other breeding Thrushes, *i.e.* more confined to the above-mentioned districts and altitudes. Not truly gregarious.

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[1] I take this opportunity of emphatically agreeing with Col. Drummond Hay's remarks in the paper just quoted, as regards the cause of the occurrence—mostly of young birds—of such great rarities from the far east, as against Mr. Gould's views, when he instances the irruption of Pallas's Sand-Grouse in proof of them, and as compared with the present visit of this species. Col. Drummond Hay says of the Sand-Grouse: "They were impelled westward, after long intervals, by some strong influence bearing upon them *prior to their breeding season.*" There is wisdom in these words (see also under Sand-Grouse, *infra*), as compared with the migrations of young birds in autumn.

In 1886 it was believed to be occasionally resident in winter in TAY by Col. Drummond Hay (v. *Report on Ornithology of East of Scotland*, 1886), one in the Perth Museum being dated as early as February 5, 1882, which was shot on the Ochil Hills by Mr. James Dow, Balmano (? FORTH).

Mr. Godfrey notes that it arrived on the 21st April at Dunan (1892), and became fairly abundant on the stony hillsides and around Loch Eigheach.

In Fife it nests at Priorsmuir, Dunino, and as far east as Kinaldy (?)—says Mr. George Bruce (*op. cit.*, p. 275)—and some three or four miles from St. Andrews, and Mr. Berwick notes it as "rare: occasionally seen during spring and autumn migration."

Common in the upper portions of Glen Ogle, and generally in all suitable places throughout the area.

Mr. J. Davidson once saw a single bird at Ruthven—*i.e.* on the borders of Perth and Forfar—in October 1904. We have few other accounts of it even so low down as this.

Mr. W. Evans found a nest "surrounded with *Alchemilla alpina*, and a quantity of *Saxifraga aizoides* was growing near it, and it was within a couple of yards of a Common Gull's nest." This was upon Meall Gruidh; and in August 1905 he found one on the very summit of Craig Cailleach, where doubtless it had been feasting upon some early ripened hill-berries.

Millais adds the note of local interest: "Sparsely distributed throughout the hills, usually frequenting the edges of the gorse, bracken, or juniper."

There seemed to be a consensus of opinion in 1905 that these birds were scarcer during that spring.

Mr. Charles Macpherson,[1] Inver, Dunkeld, speaks of it being always to be found at several places throughout Strathbraan, *e.g.* Glen Gar, Craig na Huagh (Dalguise), above the Glac sawmill, at Amulree, and doubtless some other parts.

### Family **CINCLIDÆ.**

**Cinclus aquaticus**, *Bechst.* **Common Dipper.**

Resident. Common both on lowland and mountain streams, and may even be seen, but more rarely, along the shores of fresh-water lochs;

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[1] See p. 74, footnote.

and, but still more rarely, I have found individuals on the rocks or flying along the edges of salt water—possibly passing on from one burn-mouth to another, but also feeding upon the insect life which is there to be found, especially in severe winter weather. The Dipper is to be found also at considerable elevations, ascending the mountain burns almost to their sources. Solitary (but see my volume on NORTH-WEST HIGHLANDS and SKYE).

Mr. R. N. Kerr, of Dundee, adds his testimony to the harmlessness of this charming little bird in an eloquent defence contributed to the East of Scotland Union of Naturalists' Societies (*Proc.*, 1887, p. 19, etc.)—remarks which apply equally in summer and in the winter months. I am always glad to add independent testimony thus, and recommend a perusal of Mr. Kerr's remarks. Also, I may once more refer to our own remarks in previous volumes of this series, especially our first and ninth volumes.

In 1850 Col. H. W. Feilden did not recollect ever having seen a Dipper on the Eden. He adds (*in lit.* to me): "I think I am fairly correct in this observation, for I went to Dumfriesshire in the winter of 1855 on a visit, and I remember my joy at seeing Dippers in abundance" (SOLWAY).

At the present time (1904) Dippers are known to be abundant on the Kenley Burn and elsewhere in the east of Fife.

But there is a somewhat suspicious scarcity of the Dipper in several districts in the north-west, west, and south-west of TAY, and this seems to me to point at *local persecution*. In this I would be glad to learn that I am wrong. But I do not find that I made a single note in my journals of May and June 1905 in those parts; and Mr. W. Evans, when in the Killin district in August of the same year, tells me he only met with it "*on a few occasions*," instancing only three widely separate localities.

## Family **SYLVIIDÆ**.

### Saxicola œnanthe (*L.*). Common Wheatear.

Summer visitant, about our earliest to arrive. It has a wide range throughout the entire area, from the sand-hills of Fife and Forfar and the cliff-tops of Forfar and Kincardine to the furthest recesses of the Highlands, going up, to my own knowledge, to at least the 2600 feet of altitude above sea-level. It is, however, more scattered in the higher grounds, but may shortly be described as universal in all suitable places. A favourite haunt is among the "blars" or great level moors, where huge boulders lie scattered over their surfaces, and another haunt is found in the "rough-stane dykes" of the "dryfields," where, even along the public roads, the handsome males may be seen just after their arrival in spring flitting along from one perch to another. It is least common on alluvial plains, but even there may be locally met with. Not truly gregarious, but "flighting" in numbers. In the north-east of Fife principally observed near the coast or on the moorlands.

The Wheatear certainly appeared to be unusually scarce in May and June 1905 throughout the area. I observed them to be most abundant in Glen Artney and Glen Turrit, but afterwards *distinctly scarce* in other parts of TAY and Strathmore. Later information from several correspondents agrees that of late years this species has been getting rarer and rarer in this part.

In autumn numbers appear previous to migrating along the sides of the Tay estuary (Millais).

In some localities their numbers appear to remain much the same from year to year, and this is remarked upon by Mr. Charles Mackintosh (Strathbraan), and others elsewhere. It is designated "fairly common" about Guthrie by the Rev. Wm. M'Connochie.

But though the Wheatear certainly appeared to me to be unusually scarce in May 1905, as above related, Wm. Evans speaks of it as "common" in August of the same year; and he instances "several on Craig Cailleach (one near the top) on 11th August; Glen Lochay, 14th; Loch na Lairige, 15th; Cru Ben, 20th," etc.

**Saxicola deserti**, *Rüppell.* **Desert-Wheatear.**

Rare. Occasional visitant. TAY records the second specimen for Scotland and for Great Britain. The first one was obtained in FORTH at Alloa in November 1880, and was recorded in the *Proc. Royal Phys. Soc. Edin.*, in 1881 (p. 453).

I reproduce the original record of this Tay basin specimen as given by Col. Drummond Hay, as the method of recording leaves nothing to be desired.

He exhibited the bird at a meeting of the Perthshire Society on the 9th February 1888, and he recorded it in the *Transactions* of that Society (vol. i. p. 90, in the session 1887-8). He then, for the satisfaction of English ornithologists, exhibited it at a meeting of the Zoological Society of London, and it was again recorded in the pages of the *Ibis* in the April number of 1888.

The original record is as follows: "The specimen now exhibited," says Col. Drummond Hay, "was shot about half a mile east of

Arbroath by Mr. Alex. Marshall, bird-stuffer, on the 28th December 1887, at about 2 P.M., as it was flying inland across the road leading along the top of the cliffs, having evidently just reached the shore. It was blowing fresh from the south at the time, after a very severe frost, which had continued for some days previous to this; and by mere chance it came into my hands." Col. Drummond Hay's attention was attracted to the "occurrence of a Wheatear in midwinter," and hence arose the inquiry which resulted in the discovery. The sex, however, could not be ascertained, but it was believed to be a young male of the year (*Trans. Perth. Soc.*, *loc. cit.*).

To the above Col. Drummond Hay adds (*in lit.* to me, 18th January 1888) that "it was sent loose to me in an envelope"—by a correspondent—"*and was stamped to pieces*"; and he sent on the mutilated remains to me at the same time. However, it was made up with fair success by Mr. Small, of Edinburgh, before it was sent on to Dr. P. L. Sclater, and Col. Drummond Hay got it back in good condition.

The specific name was altered in the *Ibis* and *P. Z. S.* from *melanoleuca* to *deserti*.

**Pratincola rubetra (*L.*). Whinchat.**

Summer visitant. Not uncommon. Has about the same distribution as the next species, with some slight differences. It is perhaps the more often seen of the two, because the Whinchats descend to the lower grounds in the close vicinities of their nesting grounds. The Whinchat is strictly migratory in autumn. Perhaps, on the whole, the Whinchat is the more abundant and more conspicuous of the two species.

"Moderately common in summer. Breeding," is Mr. Davidson's note of it generally.

All the time during May and June, when driving through the area, only on very rare occasions did I meet with the Whinchat—once at Comrie and once near Killin being all I can recall to memory or find entered in my journal.

It is "fairly common" about Guthrie on the furze moors (M'Connochie), but is only spoken of as "found here and there" by Mr. Charles Mackintosh in Strathbraan. It appears to be of only very limited faunal value, and of somewhat local importance, at least in the central and west districts.

Mr. Berwick does not consider it as abundant in the north-east of Fife.

Mr. Evans, however, in August 1905, reports it as "quite common around the Killin district up to the 23rd of that month. After that, only a very few were noted—one on the 24th; family party of four or five on the Dochart on 29th; adult male at the foot of Glen Lochay, 2nd September."

**Pratincola rubicola** (*L.*). **Stonechat.**

Not to be confused with the Wheatear, though that bird is often misnamed "Stonechat," or "Stonechatter," or "Stane-chacker."

Resident; but moves locally in very severe weather, and is generally considered to be less abundant in winter. In fact, the young of the year migrate and the old birds usually remain at their nesting ground, or not far removed from it; and the several pairs in any area appear to be of a more jealous and more combative nature than its near congener the Whinchat. Thus, no doubt, districts are longer of getting congested with such combative species than with those of milder temperament! The Stonechat is also believed to be much rarer in the eastern division of our area than in the central and western portions. To some extent at least the Stonechat is more a bird of the Highland glen and strath than the Whinchat, which is a more characteristic bird of the plain.

Mr. Bruce, however, has it that it breeds upon Tents Muir and close to the sea-coast of Fife, which it may indeed well do where the ground is suited to its requirements. And Mr. Berwick speaks of it as common, and remaining in winter if not too severe.

This species is not included in Mr. Davidson's list from the borders of Perth and Forfar, nor from his points of observation on the South Esk, but it is entered in the Rev. Mr. M'Connochie's list of birds seen about Guthrie, frequenting somewhat similar ground to the last, but scarcely so abundantly.

Mr. Charles Mackintosh does not appear ever to have met with it in his district; indeed, he adds: "Possibly absent from Strathbraan."

**Sylvia rufa** (*Bodd.*). **Common Whitethroat.**

Next to the Willow-Warbler the commonest of our Warblers, being very abundant as far up the country as Dunkeld. Mr. Robert Godfrey was of the opinion that Whitethroats around the head of Loch Earn entered the glen by way of the railway line, as he found it commonly occurring at several places upon the railway embankments; and it occurs also at a few places on the north side of the loch near the north-west end. This observation was made in the summer of 1893, and again in 1894.

The Whitethroat is of common distribution, and fairly abundant in Strathmore and the north-eastern portions of our area.

The Whitethroat is a common summer visitant in north-east Fife.

In August 1905 Mr. Evans reports upon one family party in Glen Dochart, the only ones met with during his stay at Killin that season. This was on the 10th of the month, and may prove a useful record as indicating an extension *viâ* Glen Ogle, as adumbrated above by Mr. Godfrey. At all events, it is well worth recording the fact.

### [Sylvia curruca (*L.*). Lesser Whitethroat.

Rare, if present at all. We must practically dismiss most, if not all, of the ancient records, unless we are to accept the situation that it was at some previous time more abundant and more widely distributed than it is at present, an alternative which I fancy will not recommend itself to our latter-day ornithologists without much better chronology than our records afford.

A pair were noticed building by Sir Thomas Moncreiffe, Bart., in 1879, but he "was not certain."

Horn speaks of it as "rare," but with no definite notes.

Dr. T. F. Dewar has "no reliable record of it in the Arbroath district."

Mr. George Bruce speaks of it as "being traced throughout Scotland," which I think it is needless to point out must have been founded on error.

With all the above indefinite accounts I retain the species in square brackets, though I may live to see them removed. Meantime all other recent lists are silent as to its occurrence, or otherwise altogether negative.]

### Ruticilla phœnicurus (*L.*). Redstart.

Summer visitant; but nowhere really abundant that I am aware of anywhere in the east, nor indeed in the area, as compared with other localities much further north and west. Appears to be slow of increase in TAY, and still more so in Strathmore, as at the date of 1870. At that time Horn spoke of it as common in certain districts of the north-west, frequenting old walls by the sides of plantations as far as Loch Tay, which indeed are their usual chosen situations (*Proc. Nat. Hist. Soc. Glas.*, 1879, p. 56). Mr. Horn refers back also to the authority of Mr. Booth's *Catalogue* (p. 121 of the 1st edition and p. 105 of the 2nd edition) as authority for Glen Lyon. It was said to be rare at Loch Rannoch by Mr. Eedle (*Zool.*, 1871, p. 2656).

Not even in 1896 does Mr. J. Milne consider it "at all abundant" about Fordoun in the east, but he believed it had bred by that time. And by later observations, even almost up to date, and by all accounts which have reached me, there seems to have been little increase of the species in any of the eastern districts since 1885 or

1886. My correspondent resident in east Fife only found a few pairs at that time (MS. in my possession).

Although not by any means common either in the Arbroath district (Dr. F. T. Dewar, in his list supplied, and most carefully annotated MS.), it is nevertheless known to occur by no means rarely at the Bell Rock Lighthouse on migration at the season of the autumn passage. It is rare, too, in other parts of Forfarshire to the east of the watersheds of South Esk with the Tay, and also throughout the eastern districts of Fifeshire.

Mr. Godfrey noted it only at one locality in the south-west, viz. in Glen Beithe, near the head of Loch Earn, in 1903; but in the following summer he found a decided increase, and it was fairly abundant or fairly distributed in at least two localities in Edinchip, and in two others in Glen Ogle, whilst it had also taken up quarters near to the top of Glen Beithe, and between Glen Beithe and St. Fillans at the foot of Loch Earn. It seemed here also to be of slow progression for a long time, until a fair start appears to have been made at these dates.

In 1896 Mr. J. Milne received eggs from Drumtochty Glen, and these are the first he had obtained (8th June 1896).

In 1902 Mr. Godfrey tells me he was credibly informed "of its presence in summer at Dunan," but did not meet with any himself. (Compare these TAY notes generally with our account of the advance of the species in the west of Scotland and thence down the Spey valley. See the volumes on ARGYLL and MORAY, and also under species in my last volume on the NORTH-WEST HIGHLANDS and SKYE.)

Careful further inquiry reveals the fact that the Redstart is somewhat peculiar in its dispersal and its lines of advance, as may be gathered from careful perusal of the volumes above referred to.

"Fairly common summer resident through the district around Ruthven, and breeds there" (*auct.* J. Davidson, 1904).

Mr. W. Evans saw several in July 1887 about the Kenmore road; a pair between Kenmore and Aberfeldy; but few were seen by him in the same district in 1892. In May 1905 I kept a specially careful eye upon this section, but met with none. They thus appear to vary in numbers from season to season.

Millais notes it as common. He had found it abundant in the Dunkeld district during the autumn migration, and he adds that it breeds "in some numbers."

Mr. Malloch (*vivâ voce*) designated it as "swarming," or "quite abundant," but, testing this, I ascertained from another source that just four pairs, or about that number, occupy the policy grounds of Scone Palace, where there appears to be abundant accommodation for the usual habits of the species.

Mr. Charles Macpherson also, after carefully considering my question as to population of the Redstart about Dunkeld, put their numbers there at about three or four pairs; and in a list sent me later of the birds observed in Strathbraan during a walk of 2½ miles upon the south side and 1¾ miles on the north side on the 6th June 1905, he mentions *one* Redstart. Mr. Charles Macpherson in this list enumerates twenty-six species, and adds the numbers seen of each.[1]

I have always been accustomed to consider that the relative populations of this species in different districts may well be gauged by the question, "How many, for instance, would you meet with in a Highland glen, by the roadside, in suitable quarters, within, say, five miles?" In MORAY I have myself seen about an average of one pair to every 100 or 200 yards of the shore of Loch Ness, and about the same along the public roads, which, as is known, follow the loch-side pretty closely. Again, in Ardnamurchan they were equally conspicuous, if not quite so abundant. But in TAY, during the whole of the time spent in driving over the roads and up and down the glens of Perthshire, Forfarshire, and at Auchenblae and Ethie, where there were any amount of suitable haunts, the total observed did not exceed some six male birds and one female. Of course some other season more might be met with.

Around Guthrie the Redstart appears upon the edges of the small moors, such as Monteathmont, where as many as three males may be heard singing on an evening of early June. "But," says Mr. M'Connochie, "though common on the moors, very rare in the country around, though the woods seem to hold suitable localities; and although this moor bounds Guthrie parish on a great part of two sides, I have never seen one in the parish itself."

Mr. Milne, whilst keeping my information up to date, writes me that in the summer of 1905 one pair of Redstarts only had appeared in Drumtochty Glen or in the immediate neighbourhood of Auchenblae (*in lit.*, 21st July).

By 1905 there appears to have been but small increase, if any, in the north-east of Fife, according to Mr. Berwick and others.

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[1] Charles Macpherson, ex-post-runner in Strathbraan, an excellent bird-observer, well acquainted with his native glen, who resides at Inver, Dunkeld, and whose name will be found mentioned in several other places in this volume.

The Redstart appears to be another of the birds which I considered scarcer than usual in May 1905, but which appeared to recover their numbers through the summer, because in Glen Lochay W. Evans found five or six pairs (*sic*) on 5th August. He found them, however, become scarce by the 24th, and the last observed by him was on the 29th. Of course I may or may not have missed seeing more there in May, as I was driving, and passing, of course, more rapidly over the same ground. And another factor must *always* be considered, viz. the influence of even one or two dark, cold, or wet days in the early summer, which is always very marked upon our smaller birds, which love the sunshine.

**[Ruticilla titys** (*Scop.*). **Black Redstart.**

I have no reliable record of the occurrence of this species within our boundaries of TAY. Mr. J. Milne expresses himself as being doubtful of the instance in the Glen of Drumtochty, as reported once to him. (See his list, given to me shortly after the lamented death of Col. Drummond Hay.)

But Mr. Berwick has the note : "Very uncommon ; has been seen in Fife"; and he quotes the one obtained at Kincardine-on-Forth, November 10 1876, as recorded by me (*Proc. Royal Phys. Soc. Edin.*, vol. iv., 1874-8, p. 142).]

**Erithacus rubecula** (*L.*). **Robin.**

It is somewhat curious to find so little said of the Robin in the old *Statistical Account*; and there is not one mention, I think, in the treatment of any of the parishes of TAY, though given often in the parishes of MORAY and ARGYLL. It is curious to find it omitted from the parishes of Weem, Moulin, and others which supply otherwise pretty full lists.

But we find that an old Gaelic name is given, and appeared well known to the Rev. Alexander Stuart, in Dumbartonshire, viz. *Brionn dearg*, *i.e.* "Red Breast."

However that may be, it is now universally distributed and common. Solitary, and pugnacious.

**Sylvia atricapilla** (*L.*). **Blackcap.**

Frequent, and less local than the next species. Found as far up the Tay valley as Dunkeld in 1880.

Mr. Nichol Simpson claims to have "found it breeding on this side of Friockheim," in a paper on the "Ornithology of Arbroath" (*Scot. Nat.*, 1887-8, p. 290). This, however, was over twenty years previously. At that time I myself certainly found them breeding commonly in the central districts of Scotland, and collected a fine series of their eggs—most of which were obtained in Torwood and upon my own grounds (FORTH); but I can scarcely credit their having reached so far north at that time.

It is now (1904) some fourteen years since Mr. T. B. Dobbie resided in Perthshire, about four miles from Perth, and he informed me that the Blackcap was then "anything but rare"; and he adds: "while I can only once remember having found the nest of the Garden-Warbler" (see Garden-Warbler, *infra*).

In the season 1893-4 a female was added to the collection at the Perth Museum—"not before represented." It was obtained on November 11 by a Mr. Macgregor, and had been feeding upon elder-berries.

In 1899 Mr. Nichol Simpson considers it to be of only local value as a breeding species in Kincardineshire. He once picked up a specimen on the highroad after a blizzard early in the year 1899, but he gives no exact date.

Millais, however, does not appraise its present value so highly. He says: "A scarce summer visitor. I have often heard him singing in the orchards at Barn Hill, Perth, where a pair or two commonly breed."

The Rev. Mr. M'Connochie describes the song of a bird he listened to in Guthrie Castle grounds upon two occasions, "a little like the song of the Whitethroat, but almost as mellow as a Blackbird," and describes the songster as keeping high up among the tree-tops, and singing about the 7th of June.

Mr. Berwick includes it as a summer migrant (*i.e.* visitor), and as breeding in north-east Fife.

### Sylvia salicaria (*L.*). Garden-Warbler.

Summer visitant. Not yet of very general dispersal throughout the area, but is an advancing species in several directions, as Col. Drummond Hay designated its value, when he wrote: "Less widely spread than many others of our spring Warblers"; and he at that time placed along with it in the same category the Tree-Pipit (v. "On Migration," *Scot. Nat.*, vol. iii. p. 286).[1] The Garden-Warbler was also seen by Col. Drummond Hay as far up the valley of the Tay as Pitlochry in 1879.

In 1895 Mr. John Cordeaux recorded it in Perthshire (*Annals Scot. Nat. Hist.*, 1895, p. 251).

In 1896 Mr. John Robertson, Thornliebank, observed the species in Kincardine Glen, near Auchterarder, on the confines of FORTH, on 13th July, and again on the Earn on the 15th, and on the same date heard it singing among some fruit-trees between Kinnoul and Perth.

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[1] This is an excellent paper running through four consecutive numbers of the *Scot. Nat.*

Actual nesting of the species within our boundaries is recorded, following upon the above, by Mr. T. B. Dobbie in the same year (viz. 1896), which will be found duly given in the *Zoologist* of that year (pp. 23-4). He wrote me lately that he had never seen nor heard the bird again in the same district, but then his opportunities have not been so great as formerly.

Regarding its presence in the more easterly portions of Strathmore, Dr. T. F. Dewar considers its occurrence as doubtful, and he "certainly has no recent record." "Nay," he adds, "more than doubtful."

In more westerly districts it appears only lately to have penetrated within our boundaries. In 1903 there was no record of it about the west end of Loch Earn, though confidently expected and looked for by Mr. Godfrey. But in the following year that gentleman found two pairs breeding at the head of the loch (1904), one nest containing three young and one addled egg, and another with one fresh egg. The first was found upon the 18th June, and the second upon the 4th July.

Evans found two singing at Dunevis near Kenmore, May 23, 1892, and one singing at Letterellen, near Fearnan, on May 27.

Millais has no remarks to make about this bird, and personally I have had no opportunities of observing it in TAY.

Mr. Berwick speaks of it as "very rare" in north-east Fife, and quotes Mr. Bruce's account of its nesting among nettles near St. Andrews (?).

But Mr. P. D. Malloch (*vivâ voce*) speaks of it—to me—as "abundant as long as he can remember." Ornithologists require much more *exactness—scientific exactness*—however, in such matters.

### **Regulus cristatus**, *Koch.* **Golden-crested Wren.**

Resident. Common. Breeds. Not truly gregarious.

Of the earlier dispersal of the Golden-crested Wren there are difficulties in the way of tracing its steps. Whether the older writers were correct or not (and who shall decide ?), I think in a strictly chronological account they are worthy of notice. It would be interesting to know (if such material is available) whether any vast northward dispersal has taken place, say within the last century, upon the continent of Europe. The unanimity among the old writers about its rarity at least is deserving of consideration, although many naturalists get rid of any such difficulties by simply pooh-poohing abilities of observation all round, and dismissing their records "as amongst the things that were," and therefore not worthy of any attention.

The old *Statistical Account* mentions them in Dunkeld as "rare" (vol. xx. p. 439) in 1798, and there is collective evidence that they were rarer (or less observed?) at that time *anywhere in Scotland*, as is shown by quotations like the following: "Has only appeared within the last twenty years in Birse" (DEE), and "first seen by the author" (old *Statistical Account*, vol ix. p. 339). "Not previously known in the county" (*i.e.* Urr, Kirkcudbright—SOLWAY), etc. Then Don spoke of it as "a rare bird" in Angus at the time he wrote (viz. 1813). In the *New Statistical Account* it is mentioned as breeding "in the Wood of Balgay, Forfar." Now (1904) common and resident throughout in all suitable localities as a nesting species, and well known to be a strong migrant to our coasts in winter besides. These flights may well be described as periodical outbursts from the Continent.

Resident around Fordoun, 1896 (*auct.* Mr. J. Milne). Very common around Loch Rannoch in April 1902 (*auct.* R. Godfrey).

Mr. Davidson does not consider it "at all common" in the district he sends his notes from.

### [Regulus ignicapillus (*C. L. Brehm*). Fire-crested Wren.

Constantly confused by recorders and ordinary observers. This is, I consider, greatly due to the confusion led up to by the names not being descriptively distinctive for the purposes of the ordinary observer. The term "Firecrest" may, *and I am sure does*, often lead to error, as the colour of the crest of a male Goldcrest *is fire-coloured as well as that of the closely allied form.* Perhaps some one of our naturalists, instead of introducing greater difficulties in nomenclature, will rather help to clear away some such as the above-mentioned, and thus do some real service and offer some real help to the field-naturalist!

The status of this bird is described thus by Mr. J. H. Gurney: "The Scottish records stand much in need of confirmation" (*Zool.*, May 1889, p. 172). Personally, I have little faith in any of them. I have "worried" out more than one "false scent." As regards the present area, I find that in most cases the male Goldcrest has been viewed even at a few yards' distance only and believed to be a Firecrest, and been so proclaimed. I have many communications of similar nature, which when worked down to solid ground do not bear scrutiny—and have not in most cases. Indeed, only can such things be put beyond cavil by persons not accustomed to have seen true Firecrests in their native haunts, by securing the specimens and carefully preserving them. The experience of any one naturalist who has studied these little birds at their homes is in such cases worth a score of observations by those who have not had such opportunities. Though I refuse to admit the species to this fauna, I do not refrain from quoting the following, because I know the gentleman who believed he heard its call-note was one who had been accustomed to meet with it abroad, or at least had had the necessary experience to enable him to set it down, whether he was correct or not in this instance. The late Rev. H. A. Macpherson wrote under date of 19th November 1900, in his notes in his seven-volume copy of the last edition of Yarrell's *British Birds*, now in the Carlisle Museum, as follows :—

"I heard, as I thought, the call-note of *R. ignicapillus*. It sounded strong and clear, and awoke old memories. But the afternoon was far advanced, and the light had faded. Three birds flew out of a fir and perched on a bare twig at the summit of one of the laburnums, looking almost as large as Cole-Tits. They called again, and then flew into the firs behind the coach-house. It was growing dark, and it was impossible to follow them up." This was at Pitlochry.

Dr. T. F. Dewar's correspondent, Mr. Larnach, appears to have great confidence in its occasional occurrence near Arbroath, but, while not denying the possibility, I am strongly of the opinion that these, if thoroughly investigated, would, like nine-tenths of other records, turn out to be merely bright examples of the male Goldcrest. In the same way the Firecrest was confidently recorded as having been seen and watched at the distance of only two yards on the level, but the observer *does not accentuate his discovery by indicating the truest and most distinct mark which is known as one of the features which best distinguishes it from its smaller congener.* I can only repeat, where such closely allied forms come up for record, and where they are of such extremely rare visitation to this country, though seeing may be believing, abilities have to be believed in too ; and in all similar cases "a bird in the hand is worth twenty in the bush," though even misidentifications can be made in the hand also.]

### Phylloscopus collybita (*Vieill.*). Chiffchaff.

The remarks upon the occurrences of this species were quite to the purpose when Col. Drummond Hay wrote on the ornithology of the Tay basin, practically disposing of all previous records or statements. Thus Mr. Thomas Eedle stated that Chiffchaffs were common in April at Loch Rannoch in 1870, and this statement was again quoted by Horn.

In the south Col. Campbell puts on record that he was accustomed to see it every spring and autumn in the grounds of the prison at Perth ("On Some Prison Birds," *Trans. Perth. Soc. Nat. Science*, vol. iii. p. 97).

Mr. Marshall, Stanley, reported it as occurring near that locality, but not commonly (Catalogue of his collection written for me by Mr. Marshall—MS.).

In the eastern portions I have no reliable account of it. Mr. Nichol Simpson quotes Mr. J. Milne as giving it place about that district, but Mr. Milne himself has since informed me that he has never been able to verify such previous observations (*in. lit.*, 21st April 1904). This, of course, therefore upsets the statement given in the *Annals Scot. Nat. Hist.* (1899, p. 149).

I have always been sceptical about most of the records of the Chiffchaff in Scotland north of FORTH and CLYDE.

Certain eggs, stated in the first instance to be those of the Marsh-Tit, taken near Perth, attracted my attention, as I was strongly on the hunt for "history" connected with that species. This statement was altered to "those of Chiffchaff," and they are now in the Perth Museum under that label. Needless to say, there is little value in this record, though it may bear looking into later.

Mr. Bruce writes at some length about its occurring, though rarely, at St. Andrews, and of finding its domed nest amongst the ivy of the Abbey Park on May 11 (?).

In 1896, however, we may rely upon the fact of Mr. W. Evans having taken the eggs or found the nest about three miles above Aberfoyle (FORTH), which is the furthest west and north locality which can be trusted to be correct, unless Mr. Paterson can enlighten us as to its visitations in CLYDE.

And in 1904 we have the occurrence of the Chiffchaff reported at Struan, in the annual report upon the movements of birds in Scotland, by Mr. Hinxman (*Annals Scot. Nat. Hist.*, 1894, p. 212).

Personally, I may say that I have always failed to discover it in any locality north of FORTH and CLYDE, though others claim to have done so, even commonly in some places, a good deal further north. I thought I heard it once or twice in Stirlingshire some years ago, but I have since come to the conclusion that it was on every occasion a Cole-Titmouse I had been listening to.

Mr. Charles Mackintosh related to me that he felt perfectly sure of at least two pairs frequenting the woods near Dunkeld in 1902, and seemed sure of their note, but such a practised observer as J. G. Millais has no note of it in the list he supplied me with. Mr. Rodger of the Perth Museum informs me that he was present along with Mr. Charles Mackintosh on the occasion of hearing the voice of at least two birds, as above related.

Mr. W. Evans has not got one reliable record of the Chiffchaff from a single locality in Fife, and he agrees with me as to the great similarity in the spring note of the Cole-Tit.

But apart from this similarity in the notes of two very different species, as a test of its presence, the Chiffchaff must be considered an irregular summer visitor, even where it has been well known to nest. And this certainly appears to be the more evident towards the northern limits of its range in this country in the breeding season. Even where fairly well established, it seems to me to vary in numbers, and even to disappear from its more advanced posts in Scotland. In effect, indeed, it seems to be of greater delicacy of constitution than some others of its congeners. In other words, perhaps it possesses greater sensitiveness to changes of temperature, and possibly other meteorological variations—a subject for inquiry which, in my own belief, still requires more persistent and systematic attention than has yet been devoted to it—whatever the outcome, if any, may be—though I am well aware that there are some experienced ornithologists who do not believe in the amalgamation of zoological with meteorological observations; or otherwise, attach little importance to the influences of the latter.

### Phylloscopus trochilus (*L.*). Willow-Wren.

The most abundant of all our summer Warblers over the whole area, and universal in distribution even—as has often been before pointed out—far up the hillsides, wherever a bit of green or even a single birch-tree is found. Swarms by 21st April. In cold seasons there is good reason to believe, such is the hardy nature of this little bird, that temperature scarcely detains it on migration, though naturally it is more silent and less conspicuous, and that too when the leaves are not yet developed on the aspen or willow. Not gregarious.

Just as we have a northern form of Chiffchaff, so also we have a northern form of Willow-Wren; and their respective ranges in sub-arctic countries have been fairly well worked out, the more arctic form being also the more eastern form on the Continent in the case of the Chiffchaff, though in the case of the Willow-Wren both forms are found to intermingle in the areas of their distribution.

### Phylloscopus sibilatrix (*Bechst.*). Wood-Wren.

Fairly common, but not universally dispersed like the Willow-Wren. Indeed, the Wood-Wren is more delicate, both in its choice and in its necessities, and affects different kind of ground, or rather foliage, than its congener, being especially fond of mixed woods of considerable age composed of beech, oak, elm, and other hard-woods. The strength of its dispersal takes a narrower line than the Willow-Warbler, and with much more westerly trend, and appears to be less active in reaching up the east coast lines north of FORTH and CLYDE.

Mr. Eedle says he found a nest in Rannoch in 1870 (*Zool.*, 1871, p. 2656).

It is common, however, along the low dividing watershed between Stirling and Perth, as for instance at Moncreiffe, Aberuthven Woods (where *I believed I saw it* many years ago when staying at Cloanden in old schooldays; but I don't give this as a record!). It is common too in other parts of Lowland Perth, and has been traced as far up the Tay valley as Faskally by Col. Drummond Hay. Mr. Marshall, The Store, Stanley, obtained it himself on 20th May 1880, and a specimen is in his collection.

In the east and Strathmore it is rare, and Mr. J. Milne cannot feel any certainty as yet of its presence about his district. Dr. T. F. Dewar considers it to be of "very doubtful" occurrence, although one or two of his correspondents are positive that it is present.

Mr. Godfrey found only one pair, he says in his list, in 1903, about three miles along the north side of Loch Earn from the head of the loch, and in 1904 one pair in the birch woods at Edinchip (MS.). (This wood is not merely birch wood, but is mixed with other hard-woods, through which I have shot on several occasions.—J. A. H.-B.)

Mr. W. Evans met with three or four in a wood at the east end of Fearnan (1887).

While it is perhaps nowhere so abundant in TAY as it is along the west side of the Great Divide—*i.e.* as far up the west coast as, say, to Arasaig in WEST ROSS—yet it is by no means uncommon in many of the sheltered glens of Perthshire, and in certain suitable kinds of wooded areas. As will be seen also from Mr. Sim's DEE, it can scarcely be called common north of the Great Divide of the Grampians, or anywhere in DEE.

Millais values it as "an increasing and now a common species"; and adds, "numbers breed in the woods about Murthly and Dunkeld."

Mr. Berwick includes it, but designates it "not common, but found in old woods about Stravithie, Fife."

I cannot speak with any personal certainty as to whether its numbers vary in different seasons—as I believe to be the case with the Chiffchaff—but I certainly cannot look upon it as nearly so common nor nearly so conspicuous in the east of Scotland north of FORTH and CLYDE, as it is in the west of the country beyond CLYDE.

### [Acrocephalus streperus (*Vieill.*). Reed-Warbler.

Harting has it: "Very rare in Scotland" (*Hand List*, 2nd edition, p. 46). I would be glad to accept it even on these terms. Mr. Nichol Simpson quotes the statement without remark. Mr. P. D. Malloch first started the account of its presence, and over and over again reiterated the same—that it "breeds in the marshes of Methven." I find it entered so in my journals of as long ago as 1888 (p. 137, MS.).

Dr. Dewar dismisses the above for any part of the district he has taken in hand.

And I may add *there is not one authentic record* of its presence or visitation anywhere in Scotland to my knowledge.

Mr. Geo. Bruce gives it quite solemnly (*op. cit.*, p. 300); but in that particular case I saw the very eggs and nest he refers to, and the eggs were typical Sedge-Warbler's eggs—certainly in an *almost typical* Reed-Warbler's nest! The nest and eggs were sent to me most carefully packed up in a roll of corrugated paper, and all as found—the nest built and suspended between four or five bulrushes among a bed of the same near the mouth of the Eden. It was found by my young friend Mr. James Cook, son of my old friend John R. W. Cook—one of our original "Ornithological Company" of four at Merchiston.

Had a Sedge-Warbler imitated the nest of a Reed-Warbler, or had a Reed-Warbler imitated the eggs of a Sedge-Warbler? Which was more likely? There is a very deeply formed nest, undoubtedly that of a Sedge-Warbler, alongside a typical nest of the same species in the Perth Museum, but no claim can be made as regards any resemblance the former has to that of a Reed-Warbler. In both cases instanced above the linings were those of a Sedge-Warbler's nest, and there were none of the broad flag-leaves which are used in the structure of the Reed-Warbler's.]

### Acrocephalus schœnobænus (*L.*). Sedge-Warbler.

Generally distributed in suitable situations. Fairly common in such sites. Still, I believe, a progressing species. Frequent on lower Tay, where there is abundance of good ground for them. In looking over old *Zoologists*, I find an account of a Sedge-Warbler's nest suspended between reeds,[1] just as I have described above under Reed-Warbler (*auct.* Mr. John P. Thomason, *op. cit.*, 1871, p. 2681). He wrote from Bolton-le-Moors.

By 1900 Mr. Milne speaks to an evident increase of the species in his district of late years. He says: "Nine of their nests were found in broom and whins beside the Bervie Water, and they are very generally dispersed."

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[1] Seebohm says: "The Sedge-Warbler's nest is *never* suspended between the reeds like the Reed-Warbler's, but is supported by the branches" (*Hist. of Brit. Birds*, etc., vol. i. p. 355). The land of "Never-never" has scarcely yet been definitely located.

They are to be met with here and there—and in some places commonly—in meadow-lands, and in the rougher patches on the slightly drier ground above, amongst bog-myrtle, along the sides of out-streams and lochs.

But the Sedge-Warbler is by no means common among the higher reaches of the tributaries of Tay. They are known, however, to have reached as far up Tay as Dalguise, where Millais has obtained specimens, and they frequent the lower reaches in perhaps increasing numbers of late years.

I observed one along the side of the loch of the Lowes in the strip of willow and alder which fringes the loch and the road on the south side. This was on the 1st June 1905—a cold, sunless day.

It is almost undoubtedly more abundant in the eastern districts than in the west, as there are far more suitable localities for it there, and it is only spoken of as "here and there" in the main valleys of Tay.

### Locustella nævia (*Bodd.*). Grasshopper-Warbler.

Summer visitant. Not abundant. Extending its range, however, in certain directions. Local.

The first mention of it is in 1870, when Mr. P. D. Malloch shot one near Methven in the spring, and this specimen is now in the Perth Museum (*Trans. Perth. Soc.*, etc., vol. i. p. 96); and in 1873 Mr. Malloch records another also shot by himself, in May of that year, at Lower Egypt, on the banks of the Almond Water. Both of these passed through the hands of Col. Drummond Hay, by 1874, though not before. These were recorded and installed on the roll of the county in 1880, by Col. Drummond Hay. If this bird be finally admitted, it may be said to have established its claim at that time.

In 1881 one was noted near Perth, in the *Proc. Nat. Hist. Soc. Glas.* (vol. v. p. 52).

Then in 1895 it was reported as nesting near Nidie Dam on the north bank of the river Eden by Mr. Geo. Bruce (*op. cit.*, p. 297).

Up to 1899 I have no conclusive evidence of its nesting (see *Annals Scot. Nat. Hist.*, 1899, p. 150—A. Nichol Simpson), except that the Rev. T. B. Dobbie reports that he took the eggs a few miles north of Perth, and expresses himself as "never having heard of another nest having been found in the neighbourhood" (*Zool.*, 1896, p. 24), and he repeats the same to me *in lit.*, 4th October 1904.

Looking over the small collection in the possession of Mr. J. Milne, at Auchenblae, in 1905, I was shown a bright brick-dust coloured egg, which I felt perfectly inclined to pronounce to be that of a Grasshopper-Warbler. It was taken by Mr. Milne on the same day and in the same place as he found the nine nests of the Sedge-Warbler.

But one can never be too careful in making such pronouncements in absence of an extensive series to compare with, as it is well known to experienced oologists that variation takes most extraordinary directions on many occasions. Perhaps Mr. Milne may set that, however, at rest another season.

Millais has never met with the species, except the one first recorded as obtained by Mr. Malloch.

I have no account of its presence around Guthrie or the lochs and marshy fringes and snipe bogs of Fithie and Rescobie, though the ground there seems admirably suited to its requirements.

## Family **PANURIDÆ.**

### [Panurus biarmicus (*L.*). Bearded Tit or Bearded Reedling.

In 1813 Don included it without remark. No one else to my knowledge has given any scientific account of its presence in the area, nor am I aware of one single other mention of it in Scotland worthy of occupying space here.]

## Family **PARIDÆ.**

### Acredula rosea (*Blyth*). Long-tailed Tit.

Resident. Common. Breeds. Universal, if somewhat local—*i.e.* not abundant, but of wide dispersal, or not conspicuously common.

Travels in family parties to their feeding grounds. Roves, but is not truly migratory. Appears to be somewhat less obtrusive in the lowlands, except perhaps in autumn, or more often seen in the up-country narrow-wooded glens (*auct.* Dr. T. F. Dewar, speaking of the eastern portions of Forfar and Strathmore).

Common in Glen Ogle and the Loch Earn district (Godfrey), in the south.

Sparingly dispersed along Loch Rannoch side, however, as observed on the north side between Camusericht Farm and Kinloch; and equally in limited numbers about the hard-wood which skirts the Black Wood of Rannoch on the opposite side of the loch. So far as I can remember, and such notes as I have still remaining of my experiences of the said Black Wood, the Long-tailed Tit did not seem to affect the pine woods to any great extent. I found it among the mixed hazel, birch, and hard-woods on Crosscraig, and along the shore of the loch among alders, but did not see any among the pines. I have often met with it in many valleys, as for instance Killiechassie, Aberfeldy, Killiecrankie, and Blair, and in many other glens and low-ground plantations of mixed woods. Even well up Glen Tilt, above Atholl, I fell in with a family party of some eight or ten birds in June.

Similar remarks to the above may be held as applicable in the eastern districts of our area.

### Parus major, *L.* Great Tit.

Resident. Common. Breeds. Universal, but local—*i.e.* with wide dispersal, but not conspicuously abundant.

In autumn it resorts in family parties—in which it usually travels—to the great reed-beds on the banks of the tidal and lower Tay, where, as Col. Drummond Hay tells us, it appears in "large numbers," but though in large numbers, not gregarious in the true sense, but found in small parties, all day long, insect-hunting. This ground would therefore appear to be a favourite haunt to which local parties gather from all sides, probably from considerable distances on both sides of the Tay. It is in fact merely a wanderer—not a migrant in any true sense—spreading outwards from their summer haunts and finding sufficient food within easy reach of their own homes, as indeed, I consider all our Titmice do.

Great Tits are to a very considerable extent carnivorous, and even develop cannibal tendencies, eating the dead body of a brother Tit at times with high appreciation. They also evince a favour for bees, and have been watched busily intent on capturing them at the entrance of a "*bees' skep.*" This I have observed myself, and my correspondents, or some of them at least, have noticed the latter also.

### Parus britannicus, *Sharpe and Dresser.* English Cole-Tit.

I do not separate our bird here from the true *Parus ater* of Linnæus; though the Cole-Tit found north of the Grampians may deserve that distinction.

Resident. Very abundant. Breeds over the whole area in most suitable places. Roams, but does not migrate, or inappreciably. The commonest of our Paridæ, not excepting the Blue Tit. Very abundant in the east around Fordoun, and generally through the eastern districts, at all seasons. Many localities could be named, but that is quite unnecessary, as its distribution may be considered as universal, as well as the commonest in both west and east.

This little bird is very hardy and very prolific, as many as ten eggs or even more having been found in a nest. In some parts, nests in cracks in dry peat-banks, as I have myself found it doing; in others, in sloping braes in old pine woods, in holes under the loose fallen foliage, or under a stone; again, in holes in old walls or more solid masonry, and many other situations.

### Parus palustris, *L.* Marsh-Tit.

I do not here separate the two Tits found north and south of the Grampian Mountains, though I believe that the northern form is deserving of earlier synonymy than the form found south of that range. Some of my reasons may be inferred after a perusal of the following notes on this form.[1]

Of *restricted dispersal* at the present time within our area.

Regarding its general dispersal in Scotland I desire to say a few words here.

I have long been acquainted with its history and dispersal in the south of Scotland, and in localities south of the Firths of Forth and Clyde. I knew it as long ago as about 1860 or 1861 in the neighbourhood of Craiglockhart Wood, Midlothian, and I procured my first specimen in a little triangular spinny of hard-woods which lay—and may still be in existence—close to the Union Canal, and between it and the public road which runs along near the northern base of Craiglockhart Hill. Since then I have long known of its presence in both summer and winter in the central districts of Scotland, between the Firths of Forth and Clyde. I have also been acquainted with what I believe to be an extremely slow progression and extension of its range in other directions—say after passing Stirling. I knew of its nesting about ten miles west of Stirling in a narrow glen, well wooded with hard-woods, on the south side of the Vale of Menteith. This was in 1879. About the same time I told Mr. Evans of its nesting here on my own ground, and put him on the way of taking the eggs, as I was myself leaving home, and was desirous of having them taken by experienced hands. I believe these form still an unbroken "clutch" in his collection.

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[1] Since the above text was written some further light has been thrown upon this peculiar dispersal, which I consider clearly illuminates the contention which I advance, that the MORAY Marsh-Tits—if not all of our Scottish Marsh-Tits—are decidedly remnants of a northern Continental fauna (see *infra*, p. 90, footnote).

It is likewise true that with the exception of eggs which I believed to be genuine (and still do so), which were obtained from Mr. Small, of Edinburgh, and were taken at Duddingston Loch, near Edinburgh, in 1860 or 1861, this Stirlingshire nest was the first authenticated, since Weir reported the breeding of the species in the neighbourhood of Linlithgow on 22nd July 1838.

It is true also that Mr. J. M. Buchanan (now of Leny) reported having shot one on or near the shores of Loch Lubnaig, in his "List of the Birds of Callander" (*Proc. Royal Phys. Soc.*, 1879, and see *Annals Scot. Nat. Hist.*, 1899, p. 57), and that after long searching, Colonel Duthie found it again at Callander. Then Mr. Evans found it in a glen behind Bridge of Allan. There remains no doubt also that it has reached as far as Almond Bank on the Almond in TAY, *viâ* a slow but natural extension by Methven and Crieff, at which intermediate localities we have abundance of evidence of its residence at all seasons of the year. I could easily quote much of interest and much detail, but space will hardly permit of doing more than acknowledging the assistance afforded by several correspondents for these districts along the route of its slow advances, and upon whose knowledge I can rely. Both as regards negative evidence and positive evidence I wish to mention the names of those who have helped. The following are decidedly negative with all their evidence, *i.e.* against its appearances after the accounts were sifted, viz.:—

Mr. Marshall, who had collected locally for thirty years, and formed a fine collection of local British birds, and to whom I am indebted for a carefully drawn-up and most excellent catalogue in his own MS., assured me he "had never seen nor heard of its occurrence anywhere in the Tay valley . . . *excepting* any information which the Rev. Mr. J. Alexander could give me," and to whom Mr. Marshall gave me an introduction, of which more anon. (See positive information.)

Information from the Blairgowrie district utterly failed in confirmation, though my correspondent there was supplied with perfect coloured plates from Dresser's *Birds of Europe* to assist him, after his repeated assurances of its presence.

Eggs said to have been taken "near Perth" on careful investigation turned out something else, or were on examination believed to be *Chiffchaffs*, and were placed in the Museum without any further authentication.

The Rev. Mr. Alexander, above referred to, was intimately acquainted with the bird in England before he came to reside at Avonbank, and his evidence is absolutely reliable, as all the details he gave me clearly prove.

Between the values in the above examples given I have every stage and description of records, but have been obliged to reject all, except such as relate to an isolated occurrence or small colony further north, presently to be given.

But before going further north I wish to emphasise my long-formed opinion that the Marsh-Tits which have reached Almond Bank *viâ* Methven, etc., only prove the intensely slow progress of the bird in populating since Macgillivray wrote.

I will just say a few words leading up to the record incidentally mentioned above.

When Macgillivray wrote his account he clearly states his belief that the Marsh-Tit was not to be found anywhere to the north of the Forth.

Besides the evidence that the bird is of slow progression, we also know that its procreative powers are far more limited than those of any others of our Paridæ, except perhaps the Crested Tit. (But the similitude there, as I believe, may have ceased, and recuperation of the latter may have become of comparatively recent development.)

Now, of more northern records in TAY I accept the late Mr. Booth's (*Rough Notes*, vol. v. part xi., 1882). But I realise the significance of the date. Mr. Booth says, but in the most casual way, after referring to "a few in the Lothians": "but with the exception of a few stragglers in the neighbourhood of Dunkeld and near Perth, I have observed none that could be positively identified in the Highlands." His references, I believe, are: "near Perth" for Methven; and the "neighbourhood of Dunkeld" may be held as further verified by the next records by Mr. Bruce Campbell, which I, of course, also accept.

Mr. Bruce Campbell wrote to me in reply to my inquiry (*in. lit.*, 20th November 1902) as follows: "Ballinluig. In June 1893 I saw a pair in the fir woods near Logierait, in the centre of the wood. . . . I cannot say whether they were breeding or not." Again: "On 3rd August I saw a pair I took to be young birds in the wood near (*i.e.* the same place). . . . I was unable to follow them, as I got drenched . . . and had not another opportunity, as I left the following day." The Rev. H. A. Macpherson was resident at Pitlochry for several years, and he assured me he had "never met with it about Pitlochry."

Col. Drummond Hay knew nothing of its occurrence, except to quote the statement of Booth.[1] But when Mr. Macpherson wrote to me in reply to a letter of mine suggesting a certain locality which might be patiently searched for the Marsh-Tit, he said that he believed with me that that place fulfilled the requirements of the habits of the species best. I am still in the hope that this place has been explored by another able observer, and I shall not be greatly surprised if it turns up there in isolated pairs. But, as will be seen later, that other able observer, Mr. J. G. Millais, makes no mention of it on the Murthly estates.

And now we come to the interesting discovery of the Marsh-Tit by Mr. William Evans in Speyside—*i.e.*, as we all know, to the north of the Grampians, and far down the valley among the hard-woods fringing the great pine woods of Aviemore and Rothiemurchus—as duly recorded by him at the time, and also substantiated afterwards by abundant observation of competent persons.

Mr. W. Evans, when writing to the Rev. H. A. Macpherson on the 15th September 1898, dating from near Blair Atholl, says: "Yes; I secured one of the Speyside Marsh-Tits, and sent it to Dr. Sharpe, British Museum, for comparison with British and Continental specimens. He returned it to me as *P. dresseri.* Speyside birds are decidedly brighter coloured—less dingy—than those got in FORTH." (*So also are Creepers and Cole-Tits, and especially Sparrows—the latter often just like one figured, I think, in Dawson-Rowley's "Ornithological Miscellany" as a town versus a country one!* The italics are mine.—J. A. H.-B.) But I am quite of the opinion that this colony of Marsh-Tits on Speyside is of Continental origin, and had never formed any continuous distribution with those first recorded by Macgillivray in FORTH on 22nd and 28th July 1838, and if a few are still found to exist in certain parts between, I believe these to be a remnant of old Continental dispersal, and not an advance guard of the "duskier host."

I have now, I think, said most of what at present can be said of this curious dispersal, and I hope I may be forgiven for treating the subject at some length, as possessing rather more of interest than many other species.[2]

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[1] He expressed, regarding the nearly similarly local Crested Tit, the excellent remark that he would sooner expect to find it—*i.e.* the Crested Tit—in the Black Wood of Rannoch, than to find that species in the Pass of Killiecrankie.

[2] On the first page of the treatment of this bird, I referred to some further light thrown upon the peculiar distribution of our Scottish Marsh-Tits. The name *Parus palustris dresseri* (Sharpe) assigned to them will not now stand. Mr. William Evans,

I just wish to add that the late Mr. J. Young, who left me all his MS. journals and his collection of eggs, also observed the Marsh-Tit at Dunblane (FORTH)—as might be well expected—but he has no notes of it in Speyside at any localities; thus, I think, showing how restricted its dispersal there still was when he so often visited that fine country. I may add also that it always had escaped my own observation in Speyside, and so far as we know, Aviemore is still its local habitat. It may be that, like the Speyside Squirrels, a great revival may occur in time, as indeed there is abundance of evidence that something similar has taken place with its more pine-loving relative, the Crested Tit.

I consider it almost quite unnecessary to speak at all of it in the east, but I may just say that the Rev. Mr. M'Connochie writes as follows: "I have never met with it in any part of the county (*i.e.* Forfar), though I am familiar with it on Speyside."

On September 20, 1905, I learned from a local observer that he had seen five of these birds near Dalguise on Tay, and this, if quite correct, is confirmative of the previously mentioned observations of Mr. Bruce Campbell, and the early statement of Mr. Booth given above. There may now become (what must, I think, be looked upon, if it develops, as a recuperation and rehabilitation) an increase, slow at its early stages, but increasing in strength, especially if the colonies, north or south, combine and introduce new blood and vigour.

### Parus cæruleus, *L.* Blue Tit.

Resident. Common. Breeds. Universal distribution over all suitable ground in plain or valley, but less general far up the valleys, and more local there.

Speaking of certain damages done to pears in gardens and orchards by Titmice, we certainly suffered considerable annoyance from having our jargonelles and some other kinds of pears—ripe and even unripe

who first discovered the isolated colony near Aviemore on Speyside, had, at Mr. Hartert's request, sent him all his specimens from FORTH and MORAY, and the following is the communication he received in return (received by Mr. Evans on 12th June 1905): "I was more surprised than ever," Mr. Hartert says, "when I found that your supposed *Parus palustris dresseri* had nothing to do with it, but were the Willow-Tit (*Parus montanus*, Kleinschmidt, or incorrectly called *P. salicarius*), hitherto not known north of Middlesex (near London)." Mr. Evans adds: "One of these birds was the example named *Parus dresseri* by Dr. Sharpe."

I do not pretend to split any more Scottish variations off the stock, but it might be of interest to Mr. Hartert further to consider the effects of isolation of the separate colonies of these birds, as I have endeavoured to describe in these pages.

—pierced by small birds. This refers to the present autumn (1905). I believe that the skin of the fruit was pierced in some cases by Titmice whilst in search of small insects, and the abrasions thus made were seized upon afterwards by wasps. The appearance of some—the ripest—certainly showed the after-attacks of wasps quite clearly, the skin remaining drooping over the cavity, and the flesh of the fruit being hollowed out around. The attacks of Blackbirds (and Starlings ?) left a quite different appearance. There was no overhanging of the skin of the fruit, but the holes were made directly down through both skin and flesh, and the bill-marks of birds were quite apparent and easily traced.

During his visit to the Killin district in August 1905, Mr. W. Evans remarked upon the number of this species in that vicinity, and considered their numbers to be greater than those of the Cole-Tit.

### [Lophophanes cristatus (*L.*). Crested Tit.[1]

The old and oft-repeated statement of birds seen in the Pass of Killiecrankie has never been verified ; and I completely agree with the late Col. Drummond Hay, when he expresses the opinion that that locality was quite unsuited to the requirements of such a pine-loving bird, and that he would sooner have expected to hear of its presence in the old Black Wood of Rannoch. Were the Crested Tit conspicuous as a migratory bird—as none of the genus or immediate allies can be said to be—such an occurrence might become possible ; or if at one time within reach of our knowledge there had been any old decadent haunts of the species in any part of Perthshire or south of the Grampians, it would also become possible that the Roving habits of the bird, which it holds in common with its congeners, might lead it from such haunts as far northwards and upwards to these birch-clad slopes of Killiecrankie. But this is all against our more recent teaching. It is essentially a bird of the pine or the immediate neighbourhood of the pine woods.

Likewise—though I regret to throw doubt upon records made in all sincerity of belief and purpose, when men were young—for the sake of truth I must still further criticise several past records of the occurrence of this bird which have been often quoted. There is, I think, an account of its occurrence, or of a casual appearance, somewhere near Dumfries, but I cannot lay hand upon the reference at present. I may, however, safely leave that in the hands of Mr. Robert Service, when he comes to complete his volume upon the fauna of SOLWAY. It may be possible that, just as at one time isolated small colonies of Crossbills were known to frequent certain portions of pine-growth in that district, a far south remnant of Crested Tits survived ; but I prefer not to accept that theory unproved, or in the absence of stronger proofs. In fact, I may express my ideas thus:—We have considerable evidences of the existence of an older fauna of Continental origin, in the apparent remnants and isolated areas in which these are found; and, also, we have of course abundance of facts showing the rapid increase of other species which are pressing forward in evolution and dispersal at the present time. It can only, however, remain a matter of opinion as to whether certain far southerly and very limited accounts as to isolated companies or pairs of such decadent species can be trusted.

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[1] Mr. E. Hartert assigns this bird now in synonymy to *Parus cristatus scoticus* (Prazaki).

Col. Drummond Hay informed Col. Campbell that two specimens of the Crested Tit were shot at Blair Drummond (FORTH) by the late Dr. Saxby, in 1858, quite, in his opinion then, "entitling the bird to admittance to the place in the Perthshire list." If this was a correct *identification*—and that of course is quite possible—it is still sufficient for my argument as above, that at the present time it is surely extinct there; and I am not aware that another has ever been seen within many miles of it. As I have said, or Col. Drummond Hay has told us, this was in the year 1858—when men were young! At that time also, or a little later in life, other accounts were given of these curious sporadical appearances; but I think it is sufficient to say they are none of them satisfactory, or as modern ornithologists now require.

A remarkable change, however, has come over the prospects of the species, and its present and future. There are now some thirty miles, so to speak, of Crested Tits in SPEY, by two to seven or ten miles in width; and what is more, there is plenty of evidence that congestion of that great district has already begun, and these handsome little Paridæ are compelled outwards to new lands, as these latter become available in suitability, or by the force of circumstances in their great centre of Speyside and Strathspey. It may even be that as the species more and more recovers its "fitness" as a species, it may accommodate its requirements more and more to its newer surroundings. Indeed, there seems to me to be a state of affairs analogous to the resuscitation of the Squirrel in these at present comparatively recent extensions of what was well known to have been a much more limited dispersal, or as I maintain, an almost decadent remnant. I think that we have still to wait to see the Crested Tit expand and flow over the Grampians to the Tay basin or into upper DEE, until easier routes become congested to the east and north. Its present lines of advance are not difficult to trace, and are plain enough; but some day it will prove interesting to watch the further developments in other directions—*when that time arrives.*

In concluding this very negative article, I have only to add what I may call, in contradistinction of terms, *positive negatives*; and I scarcely think these are worthy of space. But to save trouble after, I may mention shortly that Mr. Duncan Dewar wrote me in reply to my inquiry: "I never got either a Marsh or a Crested Tit on Loch Tay side." My asking the question was induced by seeing a statement in a very beautiful book issued by Messrs. Virtue and Co., 1901, that the bird existed "at one time below Finlarig of Craig Cailleach" (*loc. cit.*, p. 161, 1901), but upon what authority I do not know.

I wish to add here that there is no specimen of this bird mentioned in the printed catalogue of the late Sir William Jardine's collection, nor are there any in the sale catalogue (Puttick and Simpson, June 17, 1886); nor do I remember seeing any in Sir William's collection, where I certainly looked for and expected to find one or more. Curiously, at the same time there is only one specimen of *Parus caudatus* mentioned in the catalogue. I think that the specimens recorded as obtained near Glasgow—*ante*, *q.v.* (*Naturalist's Library*, xi. p. 177)—and seen in the flesh by Lieut. Chauner, and reported to Sir William Jardine, may have existed there as a remnant at that time, or otherwise that some mistake had taken place not easy to account for at this late date. And I am under the strong belief also that similar mistakes have taken place more than once elsewhere. However, as they do not belong to the present area, I am content to leave the matter over. F. W. Bigges' specimen, *shot* in the Pass of Killiecrankie, as is recorded by Yarrell, may perhaps be accepted as about the last remnant of a very ancient habitation of TAY. Be all that as it may, the fact remains that where it does occur—viz. in the valley of the Spey—it appears to be recovering its ancient status, and even spreading outwards, but at all other localities where it has been reported to have been met with, *very many years ago*, *it has not been met with since.* More I cannot say.

And I may add that of other places where authors have stated it to occur, there has not been any proof of a satisfying nature. I am not aware of a single authentic instance of it, for example, in Aberdeen or elsewhere in DEE yet, nor at any locality to the west, in for instance Ross-shire. The only one to which (possibly) credence can be given is that at Barcaldine (ARGYLL).[1]]

## Family **SITTIDÆ.**

### Sitta cæsia, *Wolf.* Nuthatch.

Rare. Occasional visitant.

I can only give such records as have appeared, without any attempt at criticism.

The old *Statistical Account*, 1795 (vol. xvii. p. 273), mentions the parish of Killin, the only entry of this species in all the volumes. This bird was "once received by the Rev. Patrick Grant."

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[1] Often where Seebohm is quoted as an authority for Scotland it will be found that he has failed to consult more recent accounts, and his local knowledge is quite at fault. See the statement in his *British Birds and their Eggs* regarding this species as an instance (vol. i. p. 162). The river Spey runs entirely through Inverness from its source to the county abutments of Banff at one place below Grantown, and Elgin and Banff below Craigellachie. I am not aware that the Crested Tit has as yet got over the watershed to DEE at *any point*, but it has followed down the Spey in recent years —since about 1900—as far as Fochabers. Nor have I been able to locate it at any place over the much lower watershed between Spey and Morayshire, nor has it to the best of my information yet reached down into Nairn from Grantown. In fact it is still confined to the valley of the Spey and the better-wooded tributary streams.

Millais writes me: "I have never seen this bird in Perthshire"; and he appears to be at a loss to understand why it has never been obtained in that county. Perhaps my views may throw some steady light upon the matter.

Certainly it has occurred, as Don received one from the woods of Tannadyce in 1807 (Don wrote in 1813). Mr. Nichol Simpson says: "The only one I have seen was a stuffed specimen, and its owner informed me that it was shot in the neighbourhood." Naturally, scientific recorders cannot accept an ambiguity (v. *Scot. Nat.*, p. 291).

The *New Statistical Account* probably refers to its predecessor, quoting Killin, and the bird as "a rarity," and mentions it as "frequenting Drummond Hill." Alex. Campbell (*Journey through Scotland*, 1802, vol. i. p. 231) includes "Nuthatches," but, as usual with that author, adds few or no notes.

So far, Don's record must be accepted as the only one which can be said to have any value up to this period.

Col. Drummond Hay next records one as distinctly seen by Mr. Neil Richardson, "climbing up one or two large timber-trees in the park at Pitfour Castle, on the 24th January 1895"; and this account was followed by Mr. W. T. Colman, of the University College Museum, Dundee. He reported one seen on the top of Kinnoull Hill, "on the 17th of September last" (*i.e.* September 1895)—"a distance of at most, from the aforementioned spot, three miles" (*auct.* Col. Drummond Hay). Col. Drummond Hay also accepts the "only other record, seen many years ago at the head of Loch Tay, near Killin" (v. *Scot. Nat.*, 1896, p. 24).

## Family **CERTHIIDÆ**.

### Certhia familiaris, *L.* Creeper.

Solitary. Resident. Common, but scarcely to be termed abundant. Breeds.

It is mentioned by Seebohm that the Creeper's nest is found suspended from a branch at times. I have never seen this; and if the statement is correct, it is a most singular departure from its usual custom (v. *British Birds*, vol. i. p. 172).

## Family **TROGLODYTIDÆ**.

### Troglodytes parvulus, *Koch.* Wren.

Old Gaelic name, *Dreathan.*

Resident. Common. Breeds. Common even far up the hillsides, as, for instance, near the Eagles' nests among the precipices in many localities.

## Family **MOTACILLIDÆ.**

### **Motacilla lugubris,** *Temm.* **Pied Wagtail.**

Resident. Also partial or passing migrant. Common throughout (1880). Not truly gregarious. More abundant in some summers than in others. Some remain all winter; but there is a considerable migration "steadily moving southwards along the east coast all day, in small trips and companies, along with Wheatears." So says Mr. John Cordeaux when referring to Lincolnshire; and he adds: "This migration and also residency even in severe winters may have been influenced by the greater cultivation of turnip ground and crop in Lincolnshire"; but Col. Drummond Hay, remarking upon this, thinks "this has not much to do with it in TAY."

Mr. Milne does not appear to consider it at all abundant near the east coast.

Found generally dispersed all along the Tay valley from the islands on far Loch Luydan, on the Moor of Rannoch, down the river Gower, along Loch Rannoch, down the Tay, and eastwards at least in equal abundance as far as the centre of Strathmore, and among the valleys of the eastern Grampians in the summer season, but becoming much rarer by winter in the same haunts.

Mr. Milne instances a somewhat unusual site for a nest of the Pied Wagtail, viz. in the fork of an elm-tree about eleven feet from the ground, with young ones, on 29th July, the tree being close to the side of the Luther Burn, which runs through the village of Auchenblae—the peculiarity being, I presume, in its being quite open above and under no shelter.

It is equally common in Glen Ogle and along the loch and river Earn, and I have met with it, old and young, as late as September—no doubt a late brood—at Dalclathic Bridge in Glen Artney.

Pied Wagtails appear to be irregular in their annual movements, some years frequenting certain spots in vast flocks in autumn, and almost utterly leaving the same unvisited in others; whilst at other localities a regular migration may be observed during many consecutive seasons. The Rev. Mr. M'Connochie writes me as follows: "The Pied Wagtail is fairly common by the streams and amongst the rubble of old quarries. Four or five years ago great numbers of Pied Wagtails came for shelter every evening to the evergreens round the manse. Some evenings there seemed to be as many as from sixty to seventy birds, *all beautifully marked males.* Many came from a long distance, judging from the height of their flight before reaching the evergreens. They were very noisy before going to roost. They began to come in the frosty evenings of early spring, and many continued into summer." And Mr. M'Connochie asks if this is a common experience. I have witnessed the same thing, but not on so extensive a scale.

### Motacilla alba, *L.* White Wagtail.

Not truly gregarious; only "flighting."

I cannot find any early positive evidence of the occurrence of this species of Wagtail anywhere in the east.[1] But Millais appears to have met with it. He says: "A rare autumnal visitor on passage. I have two which I killed at Monifieth in September 1886. It is evidently," he continues, "more common than is generally supposed, but keeps to the coast-lines of Scotland." I am inclined to regard the Continental White Wagtail—which is also a summer visitant to and nesting in Iceland—as of more frequent occurrence, both in autumn and spring migration, amongst our western islands and on our west coast—at least to the north of CLYDE and FORTH—than it is anywhere upon our east coast north of the Tay estuary.

But I have on two occasions in September seen a fine adult male here, in company with Pied Wagtails—the two species simultaneously under observation on the sill of my front library window, and within four feet of where I am now writing (FORTH). But I have never seen them here in any quantity.

Similarly, as regards occurrences of this Continental and Icelandic species on our east coasts, Mr. Godfrey tells me (MS. in my possession) that he saw numbers of Wagtails in the east of Fife along the shore, and *suspected* a proportion to belong to this species. But he was satisfied regarding two adult White Wagtails—one at Kilwinning (FORTH) and one at Balcomie Links (TAY), on September 22, 1905. Absolute records of White Wagtails from the east coast north of FORTH are, however, still desiderated. At Stravithie Mr. Godfrey saw many typical black-backed (*i.e.* the Pied) birds.

### Motacilla melanope, *Pall.* Grey Wagtail.

Resident. Fairly general in distribution, but in very severe weather shifts ground, and some undoubtedly migrate. In all or most of such cases, both with this and many other birds, it will generally be found that the young leave and the old birds remain, though often the weather makes them "shift" also. In the central districts Horn found a few at all seasons around Killiechassie and Aberfeldy. So far as I know, not gregarious.

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[1] The first record of it in Britain will be found in Yarrell's *British Birds* (1st edition, in the first supplement, p. 23).

In the east stated to be more abundant than the Pied Wagtail by Mr. Milne—*i.e.* in the Fordoun district, which is situated about ten miles, as the crow flies, from the coast. This dates 1896. "But," continues Mr. Milne, "not always found to remain in winter, or at least very much scarcer in hard winters."[1]

Common and nesting in the south-west around Loch Earn, and I have met with it in several localities upon the river Dochart as low down as Killin, and as far up—*i.e.* west—as Tyndrum. I think I know of at least four sites of pairs in summer between Killin and Luib, and one above. Probably there are many more. Godfrey found it common in 1903 and 1904 at Loch Earn.

In the same way I have met with pairs far up Glen Lyon—at Balgie Bridge—and also beyond Loch Rannoch. Later in the year Evans designates it as common in the Killin district.

Though noted as not uncommon in the Fordoun district by Mr. Milne, it is not apparently so common a little further west at Guthrie, and is only spoken of there as occasional on the streams.

It appears to be less abundant, or much more local, in north-east Fife.

### Motacilla raii (*Bonap.*). Ray's Wagtail.

Summer visitant. Not common. Breeds. I think of comparatively recent advances. Not gregarious. May be termed uncertain in its visits.

Col. Drummond Hay, writing in 1874, tells us he had "never once seen it in Perthshire," though about the same time Mr. Robert Gray stated that they were "equally abundant in Forfar as in the south-west of Scotland." I am well aware that they are not uncommon at certain haunts in the area of FORTH, in the Vale of Menteith, and up towards the Trosachs and Loch Ard, but nowhere to my knowledge could they be called abundant even there. In this matter, however, I am subject to correction, as I have not given very much personal attention to FORTH for a good many years. However, certainly about 1874 the Ray's Wagtail was not to be called abundant in the Vale of Menteith, nor for that part of it in east Stirlingshire, though I have taken the eggs, and knew of a few sites.

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[1] I think not enough attention has hitherto been given to these varying values by many observers, who have the chance of observing regularly in any one locality. If such observations were accompanied by scientific meteorological observations, I believe we would sooner "begin to understand" migration !

We know also that a few are certainly found breeding much farther north than the limits of my present consideration, as for instance on the sandy ground at more than one locality in the north-east of DEE.

Mr. Nichol Simpson says of it: "Not uncommon in the county of Kincardine" and "breeding annually here and there." But Dr. T. F. Dewar, Mr. Milne, and a good deal more evidence contravert that dictum; and Dr. Dewar merely marks it "*recorded*," without further notes!

It has been reported from the banks of the May Water (Ochil Hills), a pair in 1901 (*Trans. and Proc. Perth. Soc.*, etc., vol. iii. p. 112), by Mr. White.

In 1896 the Rev. Mr. Dobbie found it nesting a few miles north of Perth, but "very locally," and he justly remarks: "It is often confounded with the Grey Wagtail," which many believe to mean the female Pied Wagtail! So there is abundance of scope for confusion by imperfect observers; and may I add—in imperfect English names.

### Anthus pratensis (*L.*). Meadow-Pipit.

Resident. Abundant. Breeds. Not truly gregarious.

The commonest bird of the moorlands, extending its distribution from ground close above the top fringes of sea-cliff on the coasts, to the far upper moors and mosses, such as the great Moor of Rannoch, etc. Universally dispersed wherever the localities are suitable.

Retires in very severe winters to the coast-lines, and I have seen it on occasions more abundant there than its congener the Rock-Pipit at that season, hunting like the latter amongst the sea-tangles for insect food. Mr. Milne marks it as "fairly common" about Fordoun in likely places.

The fact of Meadow-Pipits perching upon trees is not often recorded in Scotland, but it is quite a common practice certainly in some other countries. Thus I saw many perching on trees and bushes, remaining for long periods in these positions, and many were shot. They were often seen perched beside their near relatives the Red-throated Pipits, and both species were shot in the position. This was during the course of the spring migration at the great bend in the course of the Petchora river in north-east Russia in 1875. I think the habit is, however, a somewhat local one. Mr. F. Coburn records an instance of the occurrence from Bolton-le-moor (*Zool.*, 1898, p. 215, *q.v.*). It is possible that in this country individuals of perching Pipits may belong to the allied form, and it might be worth one's while very carefully to scrutinise any that may be found doing so. It is at the same time worthy of remark that the young of the two species are very closely alike, and seem to run into one another's colours, and that even in, say, the first year's plumages. This, of course, should be borne in mind.

The Rev. Mr. M'Connochie relates that on one occasion he found quite a large flock on one little moor in the parish of Guthrie, some fifty birds, evidently a migration from some other locality. This was in the springtime.

### **Anthus trivialis** (*L.*). **Tree-Pipit.**

Summer visitant. Fairly common. Breeds. Not observed to be gregarious.

The earliest authentic record of the Tree-Pipit in the area is given by Col. Drummond Hay, who saw it in the Faskally woods, and again afterwards in lower parts of the Tay valley; but even at the date of 1880 he considered it as "rare and local."

Mr. Milne first recorded it in his list of birds around Fordoun on May 18, 1896. And Mr. M'Connochie speaks of "one or two pairs near Guthrie Manse."

In the south-west Mr. Godfrey says that it arrived on Rannoch side on 24th April 1901, and became common in the birch and hardwoods. I do not say it had not appeared there sooner, but the above is the earliest notice I possess of its occurrence.

But even in 1904 it was still considered of "very doubtful occurrence in the east of Forfar by Dr. T. F. Dewar.

Now, as long ago as 1870 I knew personally of what might even be termed its abundance in the central districts of Scotland, between FORTH and CLYDE; and I took many "clutches" of eggs within a mile and a half of this house—Dunipace—in the Torwood and on this property. A favourite nesting ground was in some rough, rushy fields bordering a large fir wood, and along a bank of a large main lade or principal ditch-cutting, which was overshadowed by a row of beech-trees close to the wood. A company of ditchers and drainers were at work, and I used to get them daily to mark nests for me, and I came up, in the course of my daily inspection of progress, and took such as I wanted. I attended to my inspection with considerably added zest!

I think the history of its advance points to a slow progress anywhere to the north of Stirlingshire.

I cannot even yet consider it a very common bird far to the north. In 1905, during May and part of June, I saw two males singing between Crieff and Comrie, and a few more were identified whilst driving past at Dunkeld, at Newburgh in Fife, and again near Dunalastair. However, the weather was so unpropitious that I may easily have missed seeing or hearing others.

In the central valleys of Perthshire they are fairly frequent in some seasons, but Mr. Charles Mackintosh considered them to be less abundant in 1905 than usual in Strathbraan, or in the neighbourhood generally.

**Anthus obscurus** (*Lath.*). **Rock-Pipit.**

Resident. Common. Breeds. Solitary.

Common along the coast-lines and in the immediate vicinity of the sea-cliffs. Rarely met with far inland at any season.

Curiously, it seems to have been omitted from any of Col. Drummond Hay's lists of 1860.

But Mr. J. Milne had found the nest near Stonehaven, and Dr. Dewar enters it in his list as "quite common all along the coast-line," as indeed I have myself witnessed between Aberdeen and the south end of the Fowlsheugh cliffs.

Mr. Eedle's note that it is found along the "lower parts of mountains about Rannoch" (*Zool.*, 1871, p. 2656) cannot, I believe, be seriously entertained.

**Anthus richardi**, *Vieill.* **Richard's Pipit.**

We are indebted to Millais for the only record of this species. He writes me as follows: "So far as I know, the immature Richard's Pipit shot by me at Dalguise on August 2, 1880, is the only specimen that has occurred in Scotland. The bird was sitting calling on a paling skirting the Dalguise backwater, and I should have passed it but for its very loud pipity note. After watching it for a few seconds I saw that the bird was much too large for even a Rock-Pipit, and so killed it."

The original record of this specimen will be found in the *Zoologist* (1886, p. 26, *q.v.*).

### Family **ORIOLIDÆ**.

**Oriolus galbula**, *L.* **Golden Oriole.**

Rare. Occasional visitant.

Two in the Montrose Museum bear no authentication—alas! like many things there deposited. They are, however, said to have been got in that neighbourhood. The curator only "believes" that they were got there, and are supposed to have been obtained about 1855 (as stated in Dr. Dewar's list). Col. Drummond Hay mentions "one in the Montrose Museum obtained of late years (?)—*in lit.* to me, 26th February 1886.

But it remained for Dr. Dewar to give us tangible proof. On 8th June 1898 a female in fine plumage was shot by Mr. W. T. Dewar and brought in to Dr. Dewar. It was got about two miles north-east of Arbroath, and about a mile from the coast (*Annals Scot. Nat. Hist.*, 1898, p. 170).

## Family **LANIIDÆ**.

### **Lanius excubitor**, *L.* **Grey Shrike.**

There is no mention of this bird in the old *Statistical Account*.

Visitant. Irregular as regards the season, as specimens have occurred from early spring and through the summer, and again from late summer and in autumn and winter. There are no authentic records of its actually nesting, although some accounts have reached me. It may almost be looked upon as a regular annual visitant. Solitary.

The late Rev. H. A. Macpherson, in his account of this species in Scotland (*Scot. Nat.*, 1891, p. 63) to date of 1890, gives us some statistics of its appearances in TAY. Quoting from information contributed by Mr. P. Henderson, of Dundee, he tells us that in twenty years Mr. P. Henderson had twelve which passed through his hands for preservation, but only four in the previous five years before he gave the information. These were under the dates of June 1884, May 1885, June 1887, and one last year (*i.e.* in 1888). Then he had one from Kinnaird "this season" (*i.e.* 1889), and he had heard of one at Monifieth, east of Broughty Ferry.

Besides those given above by the Rev. Mr. Macpherson, I can add as follows: Further inland Mr. Marshall, Stanley, had a male from Berry Hill on 5th April 1876, obtained by Mr. Thomas Kinnear; and another male, got at the ponds at Stormontfield on the 19th February 1877 by James Marshall.

In 1878 one was shot by James Dow, West Cultmalundie (*fide* P. D. Malloch), and which is now in the Perth Museum (*auct.* Col. Drummond Hay, 24th December 1878).

In 1887 Mr. Nichol Simpson records one "shot north of Carnoustie" on November 30 (*Scot. Nat.*, 1887, p. 292).

No doubt there are others which have escaped notice or record to date of 1890, but the above fairly illustrate the irregularity of its visitations and general dispersal on these occasions.

Since 1890 I have a few more to record: In 1892 Mr. Atholl

Macgregor picked up a dead one within the policies of Blair Castle —a female. This was about three weeks previous to the date of a letter he wrote to Col. Drummond Hay announcing it, on April 14, 1892.

In 1893 one is noted by Dr. Dewar (sex not ascertained) near Arbroath, December 7, 1893, and Mr. Milne records another, sent to him on the 8th March of the same year, from the Drumtochty Kennels. This, Mr. Milne adds, "is the first I have seen in Kincardineshire."[1]

And in 1894 one is recorded in the *Field* for March (p. 451) by "Pan."

Others are recorded from Craigo (1870), Drumminauld (1888).

I think I have quoted enough to justify the statement that it has occurred in every month in the year except January, and it may be quite possible that it has occurred in that month also.

I also have note of its occurrence in May 1905 from Mr. M'Connochie, as seen by himself in Guthrie parish.

Millais has also met with it, and designates it "an occasional autumn and winter visitor." He continues: "I have seen it twice at Murthly, and once spent a whole afternoon trying to shoot one of these. It was, however, extremely wild, and I did not succeed. Shortly afterwards the same bird was shot by one of our keepers, and it is now in the Museum at Perth, where you will see it."

*Obs.—Pallas's Grey Shrike.*—Seebohm identified the bird obtained at Kirriemuir which is now in the Royal Scottish Museum. I have not had an opportunity of seeing it. But if it is "as distinct as the Common is from the Hooded Crow" (Seebohm, p. 595), I think the distinction has yet to be more definitely pointed out. Seebohm goes on to say: "There are said to be several examples of Pallas's Grey Shrike in the Museum at Edinburgh," but I cannot get this verified, though I have made inquiries, and am not very well able to go myself and see them.

### Lanius collurio, *L.* Red-backed Shrike.

Very rare and apparently casual visitant. Usually appears, so far as my returns show, in late summer and early autumn.

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[1] It should be remembered that the district for which Mr. Milne vouches is restricted to a radius of some ten miles around Auchenblae. Auchenblae is situated about the north-west corner of the county, and about ten miles from the coast and three miles from the base of the great divide of the Grampians. All the more are such notes useful, *i.e.* if such are interpreted and used aright, which I hope I succeed in doing.

Occurrences had been noted previously from the Isle of May (FORTH) (see Migration Reports and *Proc. Royal Phys. Soc.*, vol. viii. p. 498), *e.g.* a male, Isle of May, on May 2, 1885.

In 1888 Dr. Dewar saw a male on the 21st May on the farm of Kirkton, about half a mile from Arbroath, which remained and was watched for several days following (*Annals Scot. Nat. Hist.*, 1898, p. 180).

A specimen of the Red-backed Shrike was sent "in the skin" by Mr. Nichol Simpson, of Mayfield, early in September 1890, which had been shot on the coast some miles to the west of Arbroath, near Ethie, on the 13th August 1890—a female in the second year, and not having attained full adult plumage. Col. Drummond Hay records it (*Scot. Nat.*, 1891, p. 67).

### [Lanius auriculatus, *Mull.* Woodchat Shrike.

**Don includes it in his list of 1813, but without remarks.]**

## Family **AMPELIDÆ.**

### Ampelis garrulus, *L.* Waxwing.

Not truly gregarious. Occasional visitant. Ranges in the times of its appearances between March and December. In some seasons comes in large numbers, and perhaps these "rushes" are fairly regular in their intervals (?). One thing, however, I think may be believed —temporary congestion at their great breeding haunts may, and probably does, cause these and similar outbursts.

Col. Drummond Hay does not appear to have had any definite or reliable accounts from the Carse of Gowrie, at least prior to 1874 or to 1880. However, it appears in Don's list as early as 1813, though without remarks. The probability is that it had long been an "erratic."

In 1871 there was a "rush" of the species as chronicled by Mr. Robert Gray, who had a paper on the circumstance read before the Natural History Society of Glasgow, but which was not printed in the *Proceedings* of the year (vol. xi.).

In 1873 one was got in the north of Fife (*Dundee Advertiser* about the 20th February).

In 1881 Mrs. Nicholson, of Glenbervie, Kincardineshire, picked up a dead one upon the public road after a severe snowstorm of 1881-2. The bird was at that time new to Mr. Milne, as he states in the list he sent me on 16th June 1899, after Col. Drummond Hay's death.

In 1883 one was shot, 18th January, in Kinneil Woods by Mr. D. Nichol, gamekeeper to Mr. Russell, and was sent to Mr. J. F. Dewar, naturalist, Edinburgh.

On the south side of the Tay and north of Fife I have the record given by Mr. George Bruce of one caught alive and kept by Miss Cooper. It was captured at Rothiesfield, Markinch, but only lived a fortnight, "and," adds Mr. Bruce, "is being stuffed."

The dispersal on migration is not, however, confined to near the coast-lines, but often these handsome visitors penetrate far inland.

Thus, in 1901 Mr. J. Bruce, Ardlevale, Pitlochry, obtained a very fine specimen on November 28 (*Scotsman*, November 29, 1901).

And in 1902 "a flock of nine frequented the neighbourhood of Rannoch Lodge during the past winter, and one was shot by the gardener, which was seen by Mr. Godfrey on the 17th April 1902."

In 1903 Mr. M'Connochie saw one, and several were shot and more seen about the district of Guthrie.

In 1904 there are four entered in Mr. P. D. Malloch's registers (which he kindly sent for my inspection), viz.: They were sent him by Mrs. M'Lean under the dates 18th, 24th, 28th, and 30th October 1903; and one from Mr. M'Nichol on 10th November; also one from Pitlochry Hydropathic for Mr. D. Macdonald. And three are recorded in Dr. Dewar's list.

And now a most astounding statement is given in the *Annals Scot. Nat. Hist.* (1894, p. 213, under TAY) of "a pair with young in the Carse of Gowrie." There is an editorial inquiry in a footnote, but I am not aware that it was ever answered. If such could be proved, it would indeed be a strange development of dispersal, and repeated migration, and congestion, and expansion, and extension, and evolution. Strange things *have* happened; but the point now is, "Can it yet be proved in 1904?" I don't think so!

## Family **MUSCICAPIDÆ**.

### Muscicapa grisola, *L.* Spotted Flycatcher.

Summer visitant. Common. Breeds. More abundant in the plain and wider valleys, but gradually creeping up to higher grounds, and especially in early springs and warm summers. Very sparingly distributed around Dunkeld by 1880 (*auct.* Mr. Brooke, *fide* Col.

Drummond Hay), but may now be considered a regular summer visitant to north-west Perthshire. "Flocks" in autumn.

Mr. Milne relates a somewhat curious situation for a nest at Auchenblae. A pair of Spotted Flycatchers insisted upon building on the top of a Chaffinch's nest while the hen Chaffinch was sitting on her eggs. After continuous fighting, the latter gave in so far as to permit of the Flycatchers completing their nest; and eventually both birds brought off their young ones, the Chaffinch *obtaining entrance to its nest by a side opening.*

The Spotted Flycatcher is a common species through the most of the Vale of Strathmore and valley of the lower Tay, but, as indicated, seems to find difficulties in penetrating far up into the smaller valleys, at least as yet—not ascending to nearly as great altitudes in TAY as they do, for instance, in the *drier* districts of the MORAY basin, north of the Grampians.

The Spotted Flycatcher seemed to be scarce in May and June 1905. I met with two only during the whole time I was driving through the district, and both of these were seen near Comrie, in a very sheltered spot.

These notes—or rather want of notes—by me in May and June 1905 are none the less, but rather the more, significant, when later in the same season (August) Mr. W. Evans wrote down his observations as follows: "Common, old and young, till about the 23rd August, when they suddenly disappeared." He continues: "I was struck with the abundance of this bird in the (Killin) district. They were met with all around Killin and far up Loch Lochay." In view of these and similar remarks by Mr. Evans regarding other species seen by him in August 1905, it would appear that the nesting season in that year was unusually short and hurried. Indeed, as I have, I think, already indicated, and may do so again, it has been almost comparable to an Arctic summer! I think such notes bear considerable (chronological) importance if philosophically considered.

### Muscicapa atricapilla, *L.* Pied Flycatcher.

Uncommon. Passing visitant. Is known to have bred both to the north and south of our present area in Scotland. Not truly gregarious.

By 1874 Col. Drummond Hay had never met with any specimens in TAY or Strathmore, though it has been known to nest both in Inverness-shire and to the south of FORTH and CLYDE. Little doubt the nesting birds in Inverness-shire reached that locality by the entrance of the Moray Firth, as we know it has occurred in both Caithness and the Pentland skerries on both migrations.

Sir Thomas Moncreiffe, Bart., records seeing one of what he believed to be this species at Moncreiffe.

In 1890 two were shot at Hedderwick, but they were not, unfortunately, obtained for the Perth Museum. They were stated to have been got at Montrose, but I have not been able to trace these two birds since.

The Rev. Mr. J. Anderson, U.F. Church Manse, Pitcairn, Perth, informed Mr. Marshall, of Stanley, that he had reported the occurrence of this bird "a few years ago," *i.e.* prior to 1905.

The Pied Flycatcher appears to turn up at rare intervals at the present time along the east coast. One was obtained in 1898, and again one in 1899, the latter near Auchenblae on the 21st May; but Mr. Milne did not think that it bred (see remarks above as to nesting in Scotland).

In 1901 Dr. Dewar once more records "one seen," and marks it as a rare visitor.

On the other hand, there is mention made of the species as having occurred in the parish of Craig in the *New Statistical Account* of the county (p. 247).

I have examined specimens in Mr. J. Milne's and in Dr. Dewar's collections in May and June 1905.

Mr. Malloch states that he has seen one or more at Loch Leven (FORTH). I still await fuller particulars from Mr. Malloch of any rarities he himself has met with (to date of September 1905), which he has several times kindly offered to send me; and also till date of going to press, and up to revisal of *this* proof sheet in May 1906.

## Family **HIRUNDINIDÆ**.

### Swallows.

The old Gaelic name of *Gobhlan-goith* was applied to both the Chimney-Swallow and the House-Martin (*auct.* P. Stuart, old *Statistical Account*), but the Sand-Martin was duly differentiated as *Gobhlan-gainbheich*, or the Sand-Swallow.

Col. Drummond Hay remarks upon the fluctuations in numbers generally of the three species of common Swallows which come to our country as summer visitants, as observed in different years. This is a fact well known in Scotland, and has often been remarked upon before. Several attempts have been made to account for it, but while many are plausible, I do not think any have been proved. Col. Drummond Hay in some measure blames the increase of Sparrows and the fact that farmers now grudge to give the herd-lads a ten-shilling gun licence to keep down the assertive hosts of these pests. This may well be *in some degree*, but I think it is quite as likely that there are other more powerful causes at work.

There seems to me to be very little doubt that Swallows feel a change of temperature far in advance of the actual arrival of the change. They usually migrate some time before any such change takes place, and their well-known habit of gathering together in large companies, perching on bare trees, or on the ledges of buildings, etc., is of course also a very ordinary observation. This is previous to autumn migration. There seems also to be no great doubt that birds are more sensitive to any such changes than, say, we humans are! They have, most likely, if not positively (to avoid theory), "nervous premonitions," which we can scarcely perhaps realise.

I think this can be easily shown from the collected accounts of travellers and field naturalists, if desired. I will only refer to my own experiences in one very typical instance, and that is the oft-repeated and observed disappearance of clouds of mosquitoes in north-east Russia long before the actual advent of the periodic north wind, *i.e.* at least quite *half an hour before we felt the slightest breath of the benefactor*. So often did this occur, day after day, that at last the series of observations forced the conclusion that the mosquitoes had a long prior admonition.

Now we have found that the Sand-Martin has the most northerly dispersal of our three common species of Swallows—I mean generally as regards its wider distribution in the world. Thus it appears that it is the hardiest of our Swallows. And we find, I think, that in this country at least it appears to be more constant in its numbers as a breeding species than, for instance, the House-Martin.

Nevertheless, and curiously, we find that the House-Martin appears in by far the greater numbers in Scotland *in our colder and wetter summers!* Whereas a superficial reasoner might say this disproves their being more sensitive to climatic changes than its congener the Sand-Martin, I take the opposite view—whether I may be supported in it or not. I have many times watched the swaying to and fro of *spring migrants* (I am now dismissing autumn migrants) where the conditions of winter and first spring seasons are under the influence of more potent and swift degrees of change than in the comparatively moderate climate of our isles, viz. in the Arctic, or at least in the sub-Arctic regions. In the north of Europe often have I witnessed flights of summer arrivals fly boldly north on a due course, anxious to reach their perhaps far-distant summer homes, but next day retreating before the renewed blizzard of snow or frost. This is, I know, almost a platitude, but it has a meaning if we can read it aright, which may be found to apply to the sensitive birds, the name of which heads this article.

What I mean to say is, I think that it is at least more than merely possible that this curious increase of Martins in our wetter and colder summers is due to the fact that there has been a crowding down of the population from *still wetter and still colder latitudes*, whether north or north-east, or from some other direction possibly on the Continent. If I may further place my idea before my readers, I might express it another way. The birds and much tender life in our northern hemisphere are in measure—very likely in great measure—dependent upon the variation of the mean of the isothermal lines of the areas affected during the spring and summer seasons across Europe and even across Asia. I will not say more here, as already *I consider I have departed from the true objects of this statistical series!* Only, it may just be possible the remarks so far will help some who are still groping in darkness as to solutions of several puzzles. And finally, I desire to ask those who read these passages to refer to instances among other sensitive species, which I have already spoken of in previous volumes of this series (*vide* the last volume under Woodcock and Snipe), and also refer them to further remarks to follow.

## Hirundo rustica, *L.* Swallow.

Summer visitant. Common. Breeds. Not truly gregarious.

In 1905 I observed distinct scarcity of this species in the cold weather which prevailed between the 19th or 20th May and well on into June in Perthshire and the other districts of TAY and Strathmore which I visited, and an equally remarkable abundance of Martins; while Sand-Martins were again quite as remarkably scarce, as compared with their usual numbers.

Later on in the summer, however, both these birds seemed to again become commoner.

## Hirundo urbica, *L.* Martin.

Summer visitant. Common. Breeds.

Mr. Milne instances a Martin's nest fixed directly upon a pane of glass upon the flat, smooth surface, without any support. He had it preserved, and in 1905 Mr. Norrie took a photograph of it along with a portrait of Mr. Milne.

Some seasons more abundant than others (see above under Swallows). Of old, and probably original, sites for the breeding places of this species, amongst many others which could be instanced, are Glen Tilt and the cliffs of Ben-y-Gloe (Col. Drummond Hay), and above the junction of the Tarff and Tilt, near Pol Tarff.

Mr. Milne considers it to have been more abundant formerly. He remembers in the fifties a Martin, having a white back as well as a white breast, nesting two successive seasons in the same house in Fordoun. He also relates the battles of the Martin and the Sparrow, ending in the whole colony of Martins joining, and plastering up the entrance. On two other occasions Mr. Milne has himself witnessed the fact of Sparrows being imprisoned in a similar fashion, and found them dead in the closed-up nest.

The Rev. Mr. M'Connochie shares in the belief that Martins are persecuted by Sparrows.

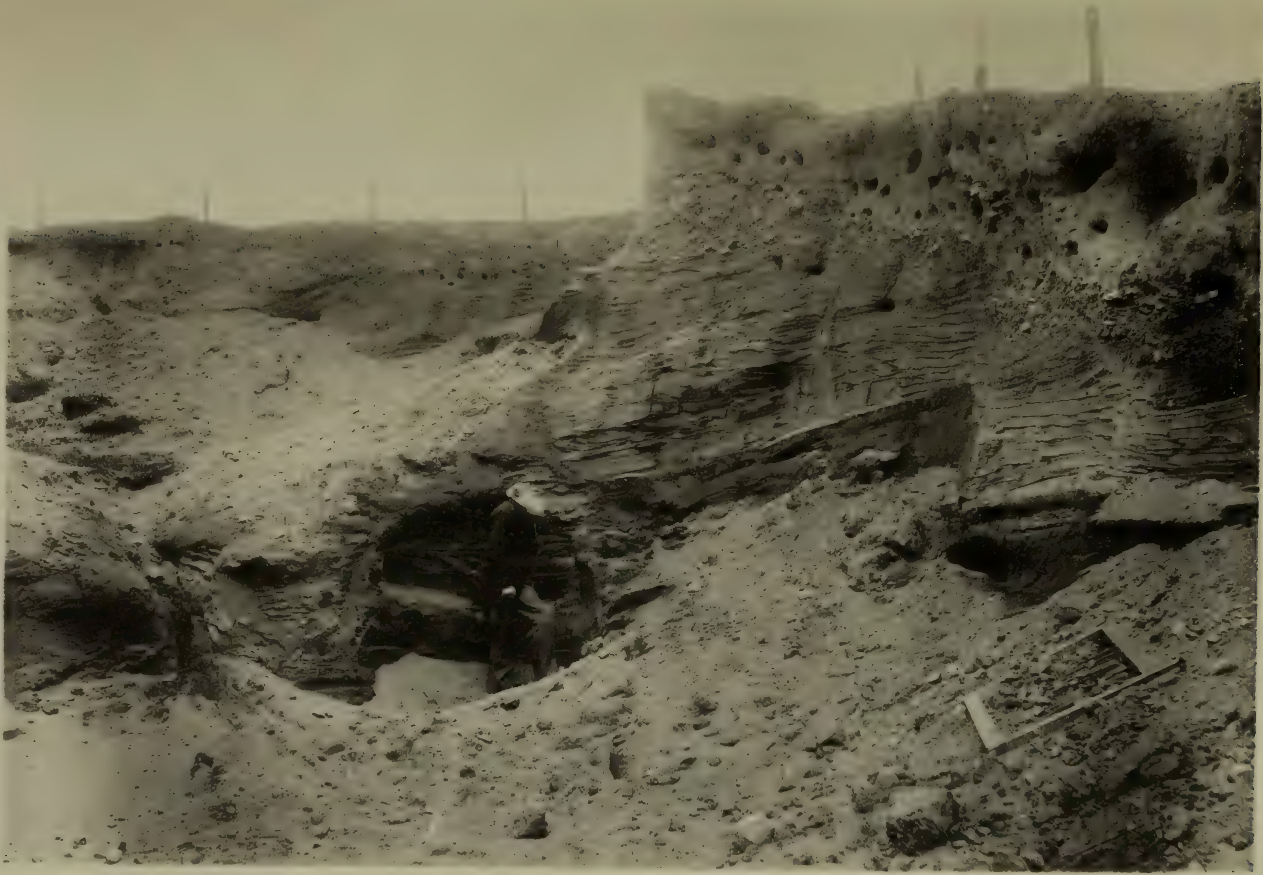
### Cotile riparia (*L.*). Sand-Martin.

Old Gaelic name, *Gobhlan-gainbheich* (see *supra*).

Summer visitant. Very abundant. Breeds. Colonies innumerable. Therefore truly gregarious, so far as our powers of observation go at the time of their spring arrivals.

In the cold spring and summer of 1905 I found this Swallow decidedly scarce as compared with their usual numbers in most years; and it seems perhaps a little difficult to account for the scarcity, when it was also taken note of how unusually abundant the allied House-Martin was (as I have already mentioned). The only large colony met with of Sand-Martins was at Auchenblae, in a sand and gravel pit which faced directly south. I obtained a photograph of this site, which was occupied by some forty pairs of the birds, along with the portrait of my friend Mr. J. Milne, whose house in Auchenblae is close to the colony, but faces directly north. Warmth surely made this locality favourable.

Another small colony occupied another sand and gravel pit between Rannoch and Struan, also facing the south; but gravel pits facing the north *failed to show up a single Sand-Martin.* It is curious to find that some birds prefer a northern aspect for their breeding places, whilst others, as it were, "seek the sunny side." Innumerable instances of this could be given. I will only instance one here—the screes and slopes befriended by the Snow-Bunting, at least so far as nests of that



COLONY OF SAND-MARTINS NEAR AUCHENBLAE, AND J. MILNE OF AUCHENBLAE.

species and their haunts have been discovered in Scotland on our mountains. I think it rather idle to go on insisting that temperatures have to do with the selection of nesting sites; or to go a little further, that temperatures have to do with dispersal and distribution, and that altitudes of haunts of various species above sea-level affect these species to quite an appreciable degree, in different latitudes and even in different localities.

But later in the season of 1905 Mr. Wm. Evans found Sand-Martins abundant around the Killin district, so that apparently the cold spring and late cold summer, which remained almost Arctic in character up to late in June, in the central districts of Scotland and in Tay, only exercised a temporary check upon the migration, shortening, however, the period of the nesting season appreciably.

## Family **FRINGILLIDÆ.**

### Carduelis elegans, *Steph.* Goldfinch.

Resident. Common but not abundant. Local now, and cannot be called general in its distribution. Not truly gregarious. Much rarer than formerly, but believed to be recovering its numbers in some localities.

Even as long ago as the date of the old *Statistical Account* its comparative rarity was voiced as regards Tay; but its abundance was at the same time spoken of in Ross-shire, presumably in east Ross-shire.

In 1813 Don considered that there was a decline in its numbers, and that the severe winter of 1795 decimated them. In this connection it is interesting to find that Mr. Robert Gray mentions, quoting from old parish registers, that "Goldfinches were abundant up to the year prior to the last, viz. 1794" (*Birds of the West of Scotland*, p. 145).

Macgillivray mentions a similar decadence due to the severe winter of 1823.

Later, Col. Drummond Hay, having carefully watched for any accounts of the Goldfinch in any part of Tay, or of its nesting there, noted a nest robbed at Aberfeldy in 1889, and another in June 1902 at the foot of Loch Tay; and he then produces evidence of a flock having been seen by Mr. Atholl Macgregor, who shot one of the individuals. Col. Drummond Hay then refers to Col. Campbell's account.

The nest and eggs taken at the lower end of Loch Tay were deposited in the Perth Museum (*Annals Scot. Nat. Hist.*, p. 1896).

Mr. Malloch, of Perth, is also quoted as having "frequently observed it near Methven." (And in this connection see remarks further on in chronology.)

At the present time the Goldfinch is entitled to be designated fairly common, but still rather local in dispersal, and breeds in suitable situations where found. Indeed, Perthshire may be considered the centre of its present distribution. Horn saw several close to the verandah of Killiechassie House, near Aberfeldy, and designated it as "tolerably numerous" in summer. This was at the close of the seventies: and Col. Drummond Hay "rejoices" in the fact.

Mr. Milne testifies to their abundance about forty years ago—say 1865. He spoke of them as "nesting in the gardens," etc. At the present time they are occasionally seen at Glenbervie and Drumtochty, but Mr. Milne, at the time he wrote me (1904) had not seen one himself for a number of years. A young bird, however, was got in Fordoun churchyard on 26th June 1897. The Rev. Mr. M'Connochie has never met with it near Guthrie.

Again recurring to the Tay valley, there is evidence of its nesting, or having been seen, in 1876, when, however, only two pairs were seen (correspondence of the late Rev. H. A. Macpherson. He had nothing more to say of their subsequent appearance there, though he was resident there for some years before his death).

In 1900 Mr. Marshall, Stanley, saw one "about half a mile from Stanley," and he adds: "I had not seen a Goldfinch for thirty years before."

Mr. Bruce Campbell tells me (*in. lit.*, 28th February 1901): "I have not seen any Goldfinches about Ballinluig since 1895." He continues that he was "almost certain that a pair had a nest in the garden then . . . and I saw them daily for a fortnight always about the same spot." (Mr. Bruce Campbell does not collect rare birds' eggs, which we are glad to have been assured.)

On the Fife side Mr. Bruce tells us: "Though not common about St. Andrews, I have got the nest," and gives the date of 25th May 1858. It was in an orchard near Kinness Burn. Other correspondents regard it as resident but not common in north-east Fife.

Millais, writing in 1905 from his notes of some years ago, says: "A rare and vanishing species. I used to see from one to two pairs every year about the asylum grounds at Murthly. When I was a boy they frequented Kinnoull Hill in small numbers, but now they have quite disappeared. The last I saw was shot by me with a catapult, on the top of an apple-tree in Bowerswell garden, Perth, and it is now in the Museum (the date you will see on the label)."

I believe, however, that there is an increase of these lovely birds, and that Perthshire is the present headquarters of the species, as I heard of their occurrence in several places along the route of my peregrinations—or survey—in 1905; and I had the rare pleasure of actually seeing one pair not very far from Methven, where I had previously been assured by Mr. Malloch of their presence. This was upon the 28th of May. They flew along the beech hedgeside in front of our horses, and finally crossed the horses' heads and flew into a strip of hardwood plantation by the side of the road. *I was pleased!*

I heard of others at or near Killin, and saw two in Mr. D. Dewar's (second) collection; and I also heard of their annual appearance in flocks in winter lower down the Tay valley, at Kenmore and elsewhere. Insistence was not placed upon the fact of their nesting, but references only made to their winter appearance. However, the Rev. J. C. Mackenzie, Kenmore, an able observer, simply accounts for the increase—which he acknowledges—as being due to a recurrence of the growth of Scotch thistles along the upper verges of cultivation and below the plantations which succeed to this belt of agricultural land, and to the less careful husbandry of later years.

My friend Mr. Frost, Crieff, writes me of one seen at Abercairney, *i.e.* a little further west, and nearer to Crieff than Methven, about eighteen months previous to the date of his letter (20th June 1905). That would be a winter occurrence (in winter of 1903). One was shot. Even such slight indications of dispersal are not barren of interest, if remembered, *and studied* as of chronological importance in the future.

### Chrysomitris spinus (*L.*). Siskin.

Resident. Common and increasing. Breeds. Not truly gregarious.

The Siskin is frequently wrongly named "Goldie." Hence some confusion is apt to get into our records between it and the last-mentioned species.

It is, though common, of but local distribution, as the ground which it favours is not universally found. Col. Campbell truly remarks that it is found "nesting in tall Scots firs where the nest is difficult to find." That is so in my experience, and certainly I never knew of it breeding among birch woods, as has been suggested to me, in a more northern area.

The earliest record of its nesting I can find in Kincardineshire is by Macgillivray (*British Birds*, 1843, vol. i. p. 402).

In 1866 I found it nesting in Dee, and I ascertained about the same time that it nested also up Glen Dye and over the range in Kincardineshire—or about 1867, I think it was.

In 1879 Horn says "rare, but I have seen its nest on an island on the Tay opposite Dalguise." It also breeds in Rannoch (*Zool.*, 1871, p. 2656), Killin (Jardine), and Col. Drummond Hay speaks of it as "abundant about Pitlochry in 1880 in winter."

The late Rev. H. A. Macpherson had seen considerable flocks of both sexes at Ballinluig and Pitlochry late in February, and then he saw no more till 28th April, when several single birds and pairs were seen singing and flying about the latter locality. (Notes in interleaved copy of Yarrell's *British Birds*, 4th edition, now in the Carlisle Museum.)

By 1901 they were found nesting on Faskally grounds, and at Guilt in June. "Appear to be common, if somewhat local, . . ." etc. "Hundreds of Siskins seen flighting up the Tay valley." Rev. Mr. Macpherson asks the question: "Were these immigrants or local birds?"

Mr. Milne says they are believed to breed about Fordoun, but he has only seen them in winter. But Siskins are evidently known towards the east end of the great divide upon the south slopes of the Braes of Drumtochty, "and breeding as fully as the amount of accommodation permits."

Godfrey reports it as very rare at the time he visited Rannoch, 7th to 28th April 1902, but beginning to appear more abundantly about the end of that month. He adds: "It certainly nests there, and the gardener, Mr. Clarke, has a number in cages."

In 1897 Mr. W. Evans found a flock on the roadside west of Fearn, and saw one in the Kelly Den in 1897.

Dr. Dewar enters it as occasional in his district, on the authority of Mr. Larnach, but does not say at which season.

The Siskin appears to me to be a species increasing its distribution towards the south; but though I have little doubt of this within the years of my own recollection, I do not insist upon it without further data than I have in my possession.

Mr. M'Connochie considers it rare about Guthrie, and he himself has only once heard its call-note there.

Mr. Milne several times in his latest letters says that there is quite clear evidence of an increase of this species in Drumtochty Glen in the nesting season of 1905.

In August 1905 Mr. Evans met with it several times about

Killin, *e.g.* one about Glen Dochart side, 13th August; two on 23rd; one on 1st September; one in Glen Lochay, 28th August. We would naturally expect at the time of year, and certainly a little later, to find Siskins in flocks, frequenting, say, the outskirts of woods, and alder and willow brakes by the streams. But the earlier broods of the season may have gone wider afield.

### Ligurinus chloris (*L.*). Greenfinch.

Might almost be considered gregarious. Resident. Abundant. Breeds. An ever-increasing species in all suitable parts of the area, roosting in thick evergreens like Starlings, night after night, and in many other kinds of thick and warm cover.

Occurs from Fordoun in the east—and from further east in Kincardine—to Glen Ogle in the south-west; and north to the limit of the suitable country up by Struan and the Garry, and among the young plantations which have been springing up along the north side of the river Garry and the Highland Railway; in fact, one of our most assertive species in the struggle for existence. In Glen Ogle, however, in 1904 it could hardly be considered as abundant as it is in other more central and eastern districts. Nor can it be counted as common in many of the minor central valleys of Perthshire.

### Coccothraustes vulgaris, *Pall.* Hawfinch.

Rare hitherto, and only a visitant till lately, of which more further on, *q.v.*

Col. Drummond Hay records that two were shot near Murray's Asylum, Perth, in the winter of 1860-1, and came into the possession of the Perth Museum, having been presented by Dr. Mackintosh, who was the medical superintendent of the asylum at the time. But later Col. Drummond Hay corrects this statement (*Annals Scot. Nat. Hist.*, 1895, p. 56), and says that "the Hawfinches previously referred to were shot in garden of Annat Lodge, Perth," by the gardener, on the wall trees, in the severe winter of 1860-1, and were at once taken to Dr. Mackintosh. This is therefore the correct account.

In 1885 Col. Drummond Hay also records, on the authority of Mr. P. D. Malloch, that the latter saw five close to Kinross (FORTH), and supposes that these may have been on passage northwards.

In 1894 Dr. Dewar says simply in his careful list from the Arbroath district, "Has been recorded."

To Mr. William Berry our thanks are due for placing on record the first instance of this species successfully nesting in Scotland, as described by him in the *Annals Scot. Nat. Hist.* for 1904, p. 11. After reviewing the older accounts by Montagu (1802), when no records of its having bred in Great Britain had been given; repeated by Macgillivray in 1837 as thoroughly correct; and the first nest and eggs obtained in the south of England (Epping Forest) by Doubleday, and recorded by Sir Wm. Jardine (*Nat. Lib.*, vol. xxv.; *Brit. Birds*, vol. ii. p. 269); and its general rarity in Britain at that time, including occurrences in Scotland "across the Border in Dumfriesshire," then Mr. Berry further traces out its chronology in Scotland, when Mr. Robert Gray wrote in his *Birds of the West of Scotland*, published in 1871, he was unable to record it as a west of Scotland species, though specimens had been obtained by that time "in nearly all the eastern counties, as far north as Aberdeenshire, Banffshire (*auct.* Mr. Edward), and Caithness. Mr. Berry then mentions its having been found nesting as far north as Petersburg. Seebohm and I obtained one bird in the cemetery at Archangel in 1875, but only one, and it appeared to be a belated wanderer, which we were unable to preserve, as upon securing the specimen nearly all the feathers came off at the slightest touch.

Still quoting Mr. Berry's article: "Readers of the *Annals* will remember that the capture of a very young bird in the gardens of Arniston House, Midlothian, early in August 1894, was the text for a paper by Mr. Eagle Clarke for the *Annals* of that year (pp. 195-7) on the 'History of the Hawfinch as a Scottish Species,' and that subsequently an adult Hawfinch was recorded as having been picked up dead in a shrubbery at the same place, and that Mr. Eagle Clarke then ventured to prophesy that 'we should in future be warranted in considering it as among our probable home-breeders,' a surmise," continues Mr. Berry, "that has now been verified."

Mr. Berry then relates that "in the beginning of August last (*i.e.* August 1903) a nest was discovered in my neighbourhood (Newport, in the east of Fifeshire), which contained one unhatched egg, the rest of the clutch having doubtless been hatched some two months earlier in the year." The finder also informed Mr. Berry that a similar nest occupied the same situation last year, though, being empty when found, no particular examination had been made of it. Mr. Berry continues: "In the present instance I found the nest to be placed on and among a bunch of twigs and suckers growing from the bole of a large elm-tree, which stands in a shrubbery, surrounded by undergrowth, about one hundred yards from a dwelling-house.

It was not more than five feet from the ground . . . and still retained its shape sufficiently for identification."

Millais favours me with the following note: "A pair of these birds passed over my head flying very high, in the winter of 1887. There was no mistaking them or their peculiar 'clinking' note, which they always utter as they fly. I think Malloch has received a Perthshire specimen, but am not sure. It has recently been obtained in Aberdeenshire (DEE)."

On the 23rd May 1905—shortly before I went north—I saw in Small's shop in Edinburgh one "killed in Fife." Alas! and I had previously been informed that birds had again been seen near their old breeding haunt in that county.

### Passer domesticus (*L.*). Common House-Sparrow.

Resident. Abundant. Breeds. Increasing in numbers and range.

Horn says: "About twenty years ago," *i.e.* prior to his writing in 1879—or to fix a date, say 1859—"the Common Sparrow was hardly known in the Upper Atholl district." But now (1902) it may be found about houses in parts of Rannoch, pushing its indomitable courses wherever the barest sustenance can be found, which are necessary to supply its small requirements—*small at least with regard to variety.*

Col. Drummond Hay also testifies to its former rarity in Rannoch, and its comparative abundance since 1880.

### Passer montanus (*L.*). Tree-Sparrow.

Very scarce and very local. Resident. Breeds, but absolute records of its doing so are very few.

Don's account of "Mountain-Sparrows on the mountains of Angus" cannot be seriously entertained nor accepted. Probably his informant was confusing it with the Snow-Bunting or some other small bird. (What's in a name? Often a great deal of error, I think.)

Col. Drummond Hay had no notice of it before 1880; but in that year he records two broods of Tree-Sparrows near Stonehaven (*in lit.* to me, January 15, 1880).

In the year 1888, when going northwards in the train to Aberdeen, I saw and watched for several minutes at least two pairs of Tree-Sparrows close to Auldbar Railway Station, but since then I have utterly failed to hear or see anything more about Tree-Sparrows in that district. And Mr. Milne has heard nothing of it in the

Fordoun district. Col. Campbell says: "Not yet been observed in Perthshire." (His paper refers only to the birds of the county.)

Dr. Dewar speaks of it as "very doubtful" in the Arbroath district by 1904.

In the Fife portion, however, as early as 1859, there was evidence of a colony inhabiting some tall fir-trees at a homestead of "Mitchells" near Leuchars, and the late Mr. J. Keddie saw them there some years previous to that date. When I was last there, some years ago, I thought at the time the position seemed still a very likely one for the species. Mr. W. Evans tells me that he found one specimen amongst the ruins of Lindores Abbey on 26th December 1886. (Notes in MS. obligingly placed at my disposal for purposes of this work.—December 1904.)

Mr. W. Evans has also been enabled to record the continuity of the species near Stonehaven, where he saw Tree-Sparrows in June 1887 (*vide ante* Col. Drummond Hay's observations in 1880).

It does not appear to be known in the Guthrie district to Mr. M'Connochie.

Besides the large colony near Crail (FORTH), Mr. Godfrey saw a single bird, associating with the Common House-Sparrows, at Craighead Farm, Fife Ness (on the border of FORTH and TAY), on September 21, 1905, and another on the road between Crail and St. Andrews (also FORTH), "near the blacksmith's shop," on September 15.

## **Fringilla cœlebs, *L.* Chaffinch.**

Resident. Very common. Breeds. "Flocks" in winter. Solitary in summer.

Perhaps of all our small birds the most abundant in all suitable localities—Rannoch, Glen Ogle, valley of Tay, and everywhere through the area in plains and glens and woods, and around the farms, and even not uncommon in the smaller towns, etc. etc.

It might almost be said—as has been said before of the Willow-Warbler—wherever a small clump of vegetation occurs there also will be found at least a pair of the homely "Shifa."

## **Fringilla montifringilla, *L.* Brambling.**

Winter visitant. Breeding instances inconclusive. Not truly gregarious.

Especially abundant about Moncreiffe, Methven, Dupplin, when beech-mast is plentiful. Col. Drummond Hay mentions the single recorded occurrence of its breeding in Glen Lyon, first on the authority of the late Mr. Booth, and as quoted by Horn (see Booth's *Rough Notes*, etc.); but I fear this must remain a great uncertainty, in absence of any other evidence at present.

The movements of Bramblings appear to be greatly dependent upon the varying supplies of food, and possibly the future dispersal is also similarly dependent on food supplies, and the areas which are so affected by seasonal abundance or scarcity. Meantime I believe that the Brambling is a pretty constant visitant to our country, but that its numbers are to a considerable extent influenced by meteorological conditions and also the state of the climate of Northern Europe in different seasons. At the present time it reaches well across Scotland, and of late years has crossed over in flocks to ARGYLL, and appeared in numbers at Loch Awe, and I have a first record of it having been found as far west as the Island of Mull in 1904, from Mr. D. Mackenzie of Tobermory (*in. lit.*, December 23, 1904). In the winter of 1860-1, I can well remember that they appeared in vast flocks around Edinburgh, and were to be found all over the district at the same time that immense flights of Wood-Pigeons occurred in the Lothians, and along our east coasts. 1860-1 was a winter of extreme severity. Some of us—Merchiston boys—shot numbers of these Pigeons with the headmaster's gun, and many specimens of Bramblings with our catapults (and, *entre nous, pistols*), and even, in order to obtain specially fine examples, used brandified wheat-corns in the poultry yards with infinite amusement; because we succeeded in filling the cocks and hens also full of the intoxicant, and enjoyed—as boys can—the fun of seeing half of the birds in ecstacies. Riddle-traps also were successfully used, and altogether we secured a very fine series of Bramblings for our respective embryo collections.

Similar reports of their unusual numbers were sent from the Humber (Cordeaux), and from the Tay and Carse of Gowrie by Col. Drummond Hay.

1864 was also a great Brambling year, but scarcely equal to the year 1860-1. Beech-mast was again very abundant. But I am not aware that any notable Brambling year has occurred since, which could be said to compare with those already mentioned.

Mr. Milne tells me that there has indeed been unusual scarcity of the species in the east of our area since March 1899, when an unusually severe storm overtook them, and a great number perished. I once felt very certain of the occurrence of a pair of Bramblings apparently nesting in a wood upon my own ground at Quarter, about three miles from my house in Stirlingshire. The birds were seen in the month of April, many years ago, at close quarters, but I have long since given up the idea in absence of further evidence (FORTH). Booth's record may be all right, but distinct evidence is awanting, in absence of any corroborative news since.

Mr. W. Evans relates that he "heard a bird-voice like a Brambling's in high beech-trees in Drummond Hill Wood on 25th July 1887, but did not succeed in seeing the bird."[1]

I may be allowed to mention here that, since our volume upon ARGYLL appeared, Bramblings have decidedly penetrated further west than there was then any record of; as, for instance, in flocks at Loch Awe, and even in single specimens as far west as Mull and Islay by 1905.

Indeed, to my fancy, there would appear to be a further westering of these autumn-winter migratory flocks quite within my own remembrance, and actual notes taken. Whether this indicates greater congestion at their northern breeding haunts, I cannot say with any power of proof: only may one be allowed to put two and two together from parallel evidences regarding other species. I can only say: "I think so."[2]

Mr. M'Connochie writes of this species: "Comes every October or thereby. Common about the beech-trees, and remains well on till April."

From any accounts I have received, it does not appear to occur at all abundantly in north-east Fife; indeed by some it is marked as of even doubtful occurrence at all.

### Linota cannabina (*L.*). Linnet.

Old Gaelic name, *Gealan-liu.*

Resident. Common. Breeds. General.

Common, not only in places along our roadsides and on grounds bordering our moss and moor lands, in summer, but in winter flocking largely on our farm lands, searching industriously wherever the seeds of many weeds and sorrel-seeds are found in waste places. Thus it is most in evidence on the poorer sorts of soil on hill farms, or on dirty and neglected holdings in the Carses; and where suitable patches occur even among the sand-hills of Tents Muir, etc.

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[1] The Greenfinches' "*szzz*" note is very like the spring note of the Brambling, as I have often heard it in Norway and north of Europe; and I can very well remember being struck by the resemblance at home, *immediately after returning from Norway* in 1871. Mr. Evans added: "Had I heard it in winter I would have set it down unhesitatingly to a Brambling's."

[2] The greater the congestion, the stronger the outburst.

Perhaps nowhere have I met with them so abundant, *i.e.* within this area, as along the roadside among broom and gorse between Forfar and Arbroath, growing on gravelly banks. And Mr. M'Connochie remarks also upon their abundance in the same neighbourhood.

### **Linota linaria** (*L.*). **Mealy Redpoll.**

Horn's record, quoting *New Statistical Account*, can hardly stand unsupported, but it is now so far supported by the actual record of its occurrence on Tents Muir, as recorded by Mr. William Berry (*vide* Laidlaw in his "Movements of Birds," *Annals Scot. Nat. Hist.*, 1899, p. 150). I have not seen this specimen, but I would naturally expect that it would be true *linaria* from North Europe, and not of Western or Greenland origin.

### **Linota rufescens** (*Vieill.*). **Lesser Redpoll.**

Resident. Fairly abundant locally. Breeds.

Nests every year around Methven (*auct.* Mr. P. D. Malloch). Occurs about Pitlochry and Killin (Horn), 1879.

In the north-east occurs as a nesting species about the Knock Hill of Fordoun (J. Milne, 1896).

In the south it is abundant at Bridge of Earn in August and September in 1902, as observed by Mr. Norman B. Kinnear.

In the south-west it is one of the commonest birds about the head of Loch Earn, through all the woods from the watershed at Balquhidder, to the head of the alder swamps in Glen Ogle, and especially abundant at Lochearnhead, as has been repeatedly noted by Mr. Godfrey.

Similarly Mr. W. Evans found it far inland up the Tay valley in April and May, and at Loch Tay at Fearnan, and in flocks of fifty or so in August close to Killin.

In the parish of Guthrie it seems to appear mostly in winter. Mr. M'Connochie thinks a few pairs may breed there, as birds are seen to frequent one or two places in the nesting season.

Mr. Berwick does not regard it as a common species around his district—Monimail, Fife.

### **Linota flavirostris** (*L.*). **Twite.**

Resident. Common. Breeds.

Col. Drummond Hay says he has only met with it in the Carse of Gowrie in autumn and winter. He does not appear to have met with it there as a nesting species, but Mr. W. Evans found several upon Tents Muir, on the Fife side, on 31st May 1885.

It is reported rare about Fordoun, and Mr. Milne has only met with it on the side of Strathfinella.[1]

In the north and north-west districts, I have met with it abundantly all along the northern boundaries from Dalnacardoch and Dalwhinnie and Loch Ericht side, where it nests commonly in the sides of half-concealed hill burns, or drains which are covered or nearly covered with long heather. It is common at the west end of Loch Ericht, and all the way down the river Ericht to Camusericht, where Godfrey also found it abundant. It occurs in rather more scattered dispersal over the fringes of the Moor of Rannoch, but does not affect the centre of that vast stretch of ground, at least not to any great extent, no doubt on account of the great extent and distance from suitable feeding grounds.

In the vicinity of Logierait and Aberfeldy, and in doubtless many other districts, it is abundant along the fringe of moorlands and above the tree growths of the sides of the valleys; but about the lower reaches of Tay it would almost seem to appear only upon migration, as Millais only speaks of it under that value; and the evidence of its occurrence in the parish of Guthrie, or at least in the lower parts of it, is almost quite in the negative.

In north-east Fife only occasionally found in winter, but see above (Evans). And Evans met with several in Glen Dochart, and in small family parties high up among the cliffs above Loch an Lairige, and at the head of Morenish Corrie, from the 7th to the 30th August 1905.

### **Pyrrhula europæa** *Vieill.* **Bullfinch.**

Resident. Common. Breeds. Generally increasing, though rarer locally.

In the old *Statistical Account* we only find the Bullfinch mentioned under the parish of Monievaird and Struan (vol. viii. p. 572, 1703), but the note is of some interest. It is there stated that it was "supposed to be attracted in numbers by the blossoms on the larch-trees at Monievaird and Struan."[2]

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[1] Strathfinella is a somewhat misleading place-name, as it is really a mountain, and not a strath or valley.

[2] I wish to mention here that the several accounts under the parishes of Scotland in this old work are well worthy of repeating *in extenso*, if it be desired to trace out the history of the Bullfinch in the country. But I can only refer to it here, as space demands that I confine myself to the area in hand. It seems, however, that the Bullfinch appeared first in the extreme south-west of Scotland, and spread north in a generally north and north-east direction, and in many parts was utterly unknown at the time the old *Statistical Account* was penned.

The other parish in which the species is mentioned is Perth, but without any remarks (vol. viii. p. 648). The Bullfinch shortly became abundant, but after a series of years again became scarce. In the lower parts of the country, about 1880, it declined in numbers. It formerly bred numerously at the west end of the Carse of Gowrie, but by 1880, says Col. Drummond Hay, "practically extinct, due to the Perth bird-catchers and to the raids by gardeners," as they "supposed that they did much injury to their fruit-trees." Then Col. Drummond Hay, with the true instincts of the naturalist, proceeds to illustrate how a largely disbudded tree (a pear) "bore a finer crop than any other fruit-tree in the garden, the buds that were destroyed having been affected by caterpillar, and so leaving the buds which remained to perfect their fruit in security." (See also much evidence in support of the contention from observed facts in the *Journal of Horticulture*, vol. iii. p. 15, and the *Cottage Gardener's Magazine* of January 21, 1860, p. 277, by Mr. Robert Brent.)

Mr. Milne has some interesting notes on the comparative abundance or scarcity of the Bullfinch in his district. "Formerly," he says, "very abundant, but not so now . . . nor since January 1895—that severe winter having thinned their ranks. They nested in beech-trees in Drumtochty Glen and at Monboddo."

Godfrey did not find them very abundant at Rannoch side, but they occur in a fir wood on the shores of Loch Eigheach. This locality is well up the Gower river and fringing upon the Moor of Rannoch.

Dr. Dewar seems uncertain of its breeding in his district, nor can we perhaps look for it there just yet.

Mr. M'Connochie has never met with any in his district, but he adds that bird-catchers get them further to the north and north-west.

In north-east Fife it is regarded as resident, but far from being common, by Mr. Berwick.

In the south-west, say around Killin, the Bullfinch was found to be fairly abundant by Mr. W. Evans in August 1905. At that time of year—as I think I have elsewhere remarked—Bullfinches begin to flock, and leaving the quieter retreats in the interior of the woods come out upon the fringes and outskirts of the plantations and coppices, etc.

### [Pinicola enucleator (*L.*). Pine-Grosbeak.

Rare visitant, or doubtful.

Col. Drummond Hay believed he saw one near Dunkeld (writing in 1880); but Horn says, "Hitherto unrecorded," and quotes from Harting's ***Hand List***, 1st edition, p. 114 (see also 2nd edition, where the statement is repeated but without square brackets). But Col. Drummond Hay cannot adopt the statement himself on sight only (see Horn, *Birds of North-West Perthshire*, and also *Scot. Nat.*, 1879-80, p. 248). Don's Grosbeaks were probably Crossbills, though Mr. Robert Grey appears to accept that record on Don's authority (v. *Birds of the West of Scotland*, p. 105). Don calls them "Pine-*Cross*-beaks."]

### Loxia pityopsittacus, *Bechst.* Parrot-Crossbill.

So far as known or recorded—rare. But I believe will prove to be a good deal commoner than has as yet been discovered. Has been known to breed in at least one instance, so far as the obtaining of old and young in a flock together is a record. This record stands alone at the present time, but if measurements of the diameter of a nest which I once possessed, and the larger measurements of one clutch of five eggs as compared with several other nests and eggs which I procured at the same time from the same locality in East Ross-shire—if these are of any use in diagnosis, then the probability is that these birds have bred sporadically or much more numerously in Scotland than has been before realised. I give the fact for what it may be considered worth.[1]

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[1] In view of the great divisions being made in this genus, I would much like to have the distribution of its breeding range more minutely described than I have anywhere been able to find that done. Until that is done—if only in order to go to an extreme opposite to that of the "splitters"—I am inclined to believe that its distribution will be found to be co-existing with at least our Scottish Common Crossbill (*Loxia curvirostra Scotica* of Hartert). I may mention here the early acceptation of this bird as a good species by that very acute and critical naturalist, the late Mr. Edward Blythe, who spoke with a very wide knowledge and extraordinarily shrewd critical acumen. Nevertheless, *it does none the less seem to be desirable* that its position should be more minutely fixed, and its value as regards its habitat more closely defined. There is surely room for some additional investigation here. I would, in fact, like to know whether these large-billed birds' distribution is co-existent with, for instance, our *nov. sub-species Loxia curvirostra Scotica*, and at the same time co-existent with the true *Loxia curvirostra* of Linné? If that is so, which of the two is the advancing *and most aggressive species*?

Since the above was written I have the following note from Millais: "The large and the small and the intermediate races all occur in Perthshire, and breed there (see my specimens in the Perth Museum),"—*which I did.* I can only repeat what I previously told Mr. Hartert when sending him all the Scottish

Mr. J. G. Millais puts on record the obtaining of two adult—male and female—Parrot-Crossbills and three young out of a flock of about twenty birds. Mr. Millais tells us that at about one month after leaving the nest, the young had beaks *larger than the largest of the Common Crossbills.* He does not tell us that the mandibles were or were not crossed. It had not been previously proved as a breeding species in Scotland. This was first noticed in the old *Proc. Perth Soc.* (vol. i. p. 182).

Mr. Marshall claims to have got specimens of the Parrot-Crossbill, shot in the Five-mile Wood, near Stanley. One in his collection bears the authentication label, "Five-mile Wood, Stanley, 11th November 1884," by James Leish—male; and two females got in the same locality, 22nd December 1884, by John Gow.

**Loxia curvirostra**, *L.* **Common Crossbill.**[1]

Resident. Very abundant, though scarcely to compare in numbers with the population in MORAY and along the Spey forests, and north of the western Grampians beyond DEE, or north of the Cairngorms at date of 1904. A rapidly increasing species wherever the woods and plantations are reaching maturity and are becoming of sufficient age to provide the necessities of their food-supplies, etc.

An interesting note occurs in the old *Statistical Account* (vol. xx. p. 439) to the effect that—"Since the *Larix* (larch-trees), on the cones of which they live, has been cultivated, the Crossbill (*Loxia curvirostra*) has appeared at Dunkeld." This date is interesting at least as fixing a very approximate time of their first or early appearance in TAY. This is followed by Don in 1813, and he speaks of the destruction done during the past two years.

In 1839 also there was an unusually abundant crop of cones on the larch-trees in the Carse of Gowrie, and that district was visited by 100's (hundreds) of Crossbills, and duly recorded by Col. Drummond Hay, writing in 1877; and that gentleman added, "and since 1839 I have *never seen them in the same locality again*"; and further, "*the cones have never been in similar abundance.*" Col. Drummond Hay also remarks upon "the enormous number of these

Crossbills which I had left over from the disaster of my fire in 1879: viz. that formerly I had a large series of Scottish Crossbills, and that every one of the sub-species he has described were represented in the series, including what he has named *Loxia curvirostra* "*Scotica.*" I think larger series still require examination, not forgetting a series representing *ages*! Also, do *all* ages migrate?

[1] Recently elevated to sub-specific rank by Hartert as *Loxia curvirostra Scotica.*

birds" in several other of his papers, written in that same year, and their comparative scarcity since.

Also, in 1839, the Museum at Montrose procured specimens of Crossbills on April 13, and again in September 1877.

The *New Statistical Account*, doubtless quoting the predecessor, gives them prominence in the year 1779, in winter.

Coming to later dates: about 100 visited Drumtochty Glen in 1886-7, and one was preserved in the collection in the Castle (J. M.); and by 1896 Mr. Milne seemed quite satisfied that some at least had nested in that district, whilst the winter flocks became greatly increased both in numbers of flocks and individuals. They were unusually abundant in 1900, much more so than for some years previously, and appeared in flocks of from 30 to 40 strong. At last Mr. Milne was enabled to put their nesting beyond all doubt. In 1903 he is able to record a nest of Crossbills found in their well-known haunt in Drumtochty Woods, on April 9. Mr. Milne says: "The nest is on the horizontal branch of a larch, far out, about 12 feet from the stem, and 40 feet from the ground. Near the point of the branch are several small twigs branching out all round, and the nest is placed in the cup formed by the junction of these twigs. The nest contains young. One of them fell out, the nest being too full, and I had the opportunity of examining it. It was about half-fledged, but with much down adhering to it. *It had a very large beak but no crossing of the mandibles*, and the feather tracts were well defined. I am glad," continues Mr. Milne, "thus to be able to put the fact of their breeding here beyond a doubt."

But in 1904 Dr. Dewar can only consider records of the occurrence of the species in his district as "very doubtful," referring to Forfarshire south of Montrose, and not speaking of Kincardineshire.

Returning to the valley of Tay, Mr. Godfrey found it nesting at or near the Bridge of Ericht on Loch Rannoch side, in April 1902—one nest containing the first egg on the 21st—and another pair at Rannoch Lodge. The nest at Bridge of Ericht was situated at the end of a branch about five feet from the ground, and the hen on the nest allowed a party of six people to stand close around the tree and examine her.

In another place Mr. Milne describes the steady progress made by a flock of Crossbills one winter—some 30 to 40 in number—as they worked through a larch plantation. They arrived on the 2nd October 1897, at the east end of the wood, and worked steadily westwards, "consuming all the larch cones as they went along.

And," continues Mr. Milne, "for some years after the woodmen complained that they could not get enough seed for planting, the cones were so barren."

Now, around Perth, Mr. Malloch has only one entered on his registers between 1893 and 1898, of date 17th November 1894; so their extensions are by no means general, but seem steady and confined for the most part to a more or less continuous drift southwards, which can hardly fail to give the impression that their advances are systematic, and resulting from congestion at their older and more northern headquarters. As pointed out in a previous treatment of the species (*vide* our *Fauna of Moray*), as these northern nesting straths and forests become thus congested, the pressure becomes greater, and we have seen that considerable winter visitations have been witnessed in the west of the mainland of Scotland, and even extending to the isles; and of necessity a migration has been performed to relieve this decided congestion over a vast area, represented by the whole forests of Speyside, and the increase at many localities in the north-east of MORAY and as far north as Sutherlandshire. When these northern localities, which are at present suitable for their healthy occupancy, are filled, the surplusage in the natural course of procreation and increase must, by a *very evident* Natural Law, escape to pastures new, whether south or east or west.

At the present time, their dispersal appears to have received most checks in a westward direction. In that direction the advance is certainly slowest, except that in quite recent years an autumn migration has developed, and been duly recorded, down along the west coast; and even a somewhat similar movement has been indicated in some of the Outer Hebrides, and such extensions of the westerly drift of the migrants of any species which formerly has only been known to occupy eastern areas in the nesting season, have always struck me as a distinct indication of internal pressure from congestion, and preliminary to a possible extension of breeding range in the future. Needless to repeat that I do not mean the above remark to be held as applying to all species, for in some at least there is good evidence that quite a different pressure may be exercised from west to east instead of from east to west. Need I refer to any of those I have before instanced? I hope not, as I cannot make my views any clearer than I have done before; though, from the absence of remark about them, perhaps they have not been made clear enough.

Crossbills which have occurred on migration at outlying stations in the north, as at Shetland and Flannen Isles, have been identified as of continental origin. How far those which have been recorded from western localities, such as Mull and even the Outer Hebrides, can be relegated to specimens of foreign or of home extraction, I think, still remains to be decided.

Crossbills have been found in the pine-trees around Monteathmount Moor, Guthrie, by Mr. M'Connochie, who recognised them first by their notes.

Mr. Berwick, Monimail, Fife, speaks of the Crossbill as an "occasional visitor, not common. A large flock visited Stravithie in 1856, when a large fir-wood was cut down. The birds fed upon the fir-tops."

Later in the chronology, and since the above was typed off, Mr. Milne informs me that there was a flock of about fifty in the Drumtochty Woods on October 1, 1905, as seen and reported by David Mitchell, who resides there and upon the estate.

In fact, there is a distinct indication of this southward trend by 1904-5, towards the south, "bursting" out from their former head-centres in SPEY, etc., and from the better-wooded fringes of our present area along the northern boundaries. In this way it may be exampled: Formerly, only a winter visitor, they appear now both in winter and late spring at many points, staying late into February and March, and evidently making preparations for a more permanent residence. They had been noticed at Bonskeid as winter visitors only for a number of years, but of late as remaining later and later, and probably intending to nest. This was prominent in March 1905, as I am informed on the authority of the Misses Barbour of Bonskeid, through Mr. Godfrey. We know that the species has already bred further south than that point, but that need not affect the new notes regarding their more abundant occurrences as above. That, in my estimation, merely depends upon the growth and ages of timber, and local amenities, and ought not to be confused with the phenomena of a more general dispersal.

### [Loxia bifasciata (*C. L. Brehm*). Two-barred Crossbill.

### Loxia leucoptera, *Gmel.* White-winged Crossbill.

Col. Drummond Hay believed he identified some six or seven "White-winged Crossbills" at Kinfauns about six years prior to 1874—say 1868—but he failed to obtain a specimen. Although Col. Drummond Hay was probably acquainted with the American White-winged Crossbill (and, so far as I know, less likely to know the European bird), the evidence for either occurring as related by him is quite insufficient for correct recording, and indeed he does not claim it as a record, being too good a naturalist to do so. One or other of the above-mentioned species may in time come to have the square brackets removed, or even possibly both ; but until such can be put on firm ground, I must adhere to the brackets for both.]

## Family **EMBERIZIDÆ.**

### Emberiza miliaria, *L.* Common or Corn-Bunting.

Resident. Common. Breeds. "Flocks" in winter.

Said by most authorities to be rarer than formerly in many parts, without any corresponding increase in others. Such may be expected in a species which affects very restricted areas and is peculiar to these areas, or nearly so.

Col. Drummond Hay believed that the decrease was due to alterations of drainage systems and change in drainage operations—in part at least—as also the filling in of old standard Carse ditches, "which formed," says Col. Drummond Hay, "their special nesting places." To this remark I think may be added: the general "improvements" (?) in agriculture, including the clearing out of dock-weeds on the farm-lands, which, in many parts of Scotland, at least, are also favourite sites for nesting and for shelter, as well as favourite perches for the old birds, when the seed-stems shoot up in summer and early autumn.

The general distribution is "coastwards," and the poorer kinds of soil appear to harbour it best. It is scarcely a bird of agriculture and high cultivation, as I have indicated above, but rather a bird of the lower order of cultivation which is usually found along our coasts, and dotted about over the crofters' holdings in the Highlands.

I have said in a previous volume of this series that it affects the limestone tracts perhaps more than others ; but that remark must not be taken as undiluted fact because the tracts are limestone only, but because, upon the limestone tracts, dock-weeds and other suitable weeds are more rampant there as well as the better grain.

Amongst inland localities they are stated to be common in Guthrie parish.

### Emberiza citrinella, *L.* Yellow Bunting.

Resident. Very abundant. Breeds. Probably the most abundant among our small birds with the exception of the Chaffinch, which, besides being more abundant, has also a more general dispersal.

It is particularly noticeable, and I have often been struck with the fact, that the yellow portions of the plumage of this species, and especially those of the males, become brighter and purer according to the selected haunts of the birds in spring, and during the breeding season. Thus birds seen perched upon the twigs and tops of broom and furze in bloom are conspicuously brilliant, vieing indeed with the vividness of the gamboge yellow of the blossoms.

### [Emberiza cirlus, *L.* Cirl Bunting.

Of extremely doubtful occurrence.

I have seen eggs said to belong to this species, which "was breeding in numbers upon Kinnoull Hill,' but on my holding these up to the light, I completely failed to find any trace of the ground-colour which I have always associated with the ground-colour of this bird's eggs, as distinguished from that of the closely allied Yellow Bunting's eggs. I do not insist that the eggs of the two species never run into the colorations of one another; but in the absence of irrefragable evidence I decline to enter the species in the TAY fauna except in brackets. I simply adhere to these facts, without going into any arguments about the ridiculous supposition that a bird like the Cirl Bunting should breed in an isolated colony in Scotland so far away from its home in the southernmost counties of England. Such indeed, if fact, would afford much rumination to students of geographical distribution.]

### Emberiza hortulana, *L.* Ortolan Bunting.

Rare. Occasional visitant.

Ornithologists know what a restricted area this species has as breeding haunts in Great Britain.

Messrs. R. and J. Henderson, of Dundee, writing to me on May 2, 1898, enclosed one in the flesh along with a Pied Flycatcher, a Whinchat, and a Redstart. In my absence from home at that season, these were forwarded by my directions to Mr. Eagle Clarke at the Museum of Science and Art, Edinburgh (now the Royal Scottish Museum). The Messrs. Henderson wrote as follows: "During all last week we have had an almost *Uninterrupted Strong Easterly Gale* prevailing" (the italics are mine, as also the introduced capitals, as these words, to my mind, represent migrational values), "varying," continues my correspondent, "from SSE. to E. and NE., which has

At p. 130. Two bad errors occur, due to misplacing of MS. or of printed matter.

1st. Transpose the short leading paragraph of two lines beginning "Ornithologists know, etc.," to the previously mentioned species, *i.e.* under [*Emberiza cirlus*, L. Cirl Bunting].

2nd. Again under *Emberiza hortulana*, L. Ortolan Bunting, delete the whole of the long paragraph which partly occupies p. 130, and is continued on p. 131. This reading belongs to *Shetland Materials*, and the MS. or the proof must have got misplaced. In the paragraph itself read "Messrs. Henderson of Dunrossness," in place of "Messrs. Henderson of Dundee" (see *Annals Scot. Nat. Hist.*, July 1898).

brought to our shores an unusual supply of strange visitors, four of which I forward to you to kindly identify." Very unfortunately, when Mr. Eagle Clarke received these birds they were too far gone for preservation (vide *Annals Scot. Nat. Hist.* of July 1898).

*Obs.*—On date of 2nd May 1885 I recorded the occurrence of this species at the Isle of May—an adult male and three others seen by the late Mr. Agnew, lighthouse-keeper there, who forwarded the specimen for identification. I exhibited it at a meeting of the Royal Physical Society (vide *Proc. Royal Phys. Soc.*, vol. viii. p. 498).

### Emberiza schœniclus, *L.* Reed-Bunting.

Resident. Fairly common, but somewhat local according to its requirements.

It wanders a good deal in winter according to the severity of the season, removing, for instance, from the higher localities occupied in summer to the carses, and even down to the shores of the sea. Moves much about locally.

The Reed-Bunting had been apparently by an oversight omitted from Col. Drummond Hay's list.—"Report on the Ornithology of the East of Scotland Districts" (*Scot. Nat.*, 1889-90, p. 98).

Elsewhere, however, Col. Drummond Hay, speaking of a visible decrease in its numbers, considers that this decrease is due to the same causes as have been referred to under the Corn-Bunting. It is still, however, quite abundant in the lower districts of the Tay valley, especially along the tidal portions below Perth, which run through the Carse of Gowrie, a very favourite haunt naturally being the great reed-beds of Mugdrum Island, and other beds of the same reeds along both banks of the tidal Tay.

It is found as far up as the Moor of Rannoch, and all the way down the Tay in suitable ground. I have seen it in midsummer at the Rannoch Railway Station, and even late in the autumn on the shores of Loch Luydon, though Mr. Godfrey does not appear to have seen it on the islands at the west end of that sheet of water. I had seen them there in August, and again in September, and once in early October.

In the north-east it is reported as "less numerous in winter."

About Loch Earn, not abundant, and rather local at the head of Loch Earn and at the mouth of the Glen Beithe Burn, where I have myself found the nest when fishing that stream. Millais mentions that he has a yellow specimen shot by Malloch at Glencarse in September 1886.

### **Plectrophenax nivalis** (*L.*). **Snow-Bunting.**

Resident. Common. Breeds. Not truly gregarious.

I think it would be somewhat pedantic to refuse the above *status* to the species in Scotland.

In the old *Statistical Account*, among very many accounts of the Snow-Bunting nesting in various parts of the country north of the Grampian ranges, I find under parishes contained within the basin of Tay and Strathmore the following: "A few of the last, *i.e.* Snowflakes, hatch out on our higher mountains" (*op. cit.*, vol. xii., 1794, p. 135). It is interesting to find so early a recognition of the fact. There are many other notices taken of it in other parts of Scotland besides the above. We have also the authority of the late Mr. W. Macgillivray; and of late years there has been plenty of proof of its nesting forthcoming. But whether the nesting of the species has been continuous or not, or only of comparatively recent development, it would now be extremely difficult to decide.

However that may be, I think it may safely be said that the present distribution of these birds in the nesting season embraces a wide area in the northern half of Scotland, both along the backbone of the country and the high mountains of the great divide between east and west, and also the main divide between north and south or the ranges and their spurs of the Grampians.

But I have no intention of going so far as to maintain that the minute and accurate details of its breeding range are actually mapped out. That may well occupy a new generation.

Horn says: "Nests in most of the high mountains, especially Ben Lawers and Shiehallion," but without any positive evidence adduced. (But see *infra.*)

Col. Drummond Hay mentions the name of Mr. J. T. Carrington as an observant naturalist, and as having produced evidence of the Snow-Bunting nesting in the mountains to the west of Rannoch, where he had resided, and who had traversed most of these mountains in that vicinity (v. *Scot. Nat.*, 1879-80, p. 245).

Mr. Robert Gray puts on record, upon the authority of Mr. W. Hamilton, of London (?), a pair seen on Scuir Ouran (ARGYLL), and speaks of that locality as "probably the furthest extension of its breeding quarters in the west of Scotland," or words to that effect. The birds there were seen on the 12th July 1868. At least three pairs are credited as nesting on Ben Nevis.

In 1901 the late Rev. H. A. Macpherson, writing from Pitlochry on October 30th, says: "Mackintyre—a keeper here, but a native of Rannoch—tells me of a colony of Snow-Buntings *on the hills west of Rannoch* (!). He seems," says Rev. Mr. Macpherson, "to be a reliable man, and is now living in this district." The "hills west of Rannoch" are the mountains of the Blackmount Deer-forest, and may embrace those about the heads of Glens Lochay and Lyon.

In the north-east of Strathmore and bases of the eastern Grampians, I have the following account from correspondents and other sources.

Mr. Duff—still alive—(*auct.* Mr. J. Milne) told the late Rev. H. A. Macpherson as follows: "The Snow-Bunting was a well-known bird in Glen Shee, in *black and white dress in winter, about the homesteads.*" (The italics are mine.) They were called "Snowbirds." In summer he used to see them running on the "riggs" (? ridges) on the tops of the hills, but, carefully as he sought their nests, he could never find them though he devoted much time to trying to do so. He spoke also of the "grey" plumage in summer, which, as Mr. Macpherson remarks, "is true of the young birds, and in a lesser degree of the female parents." So far this evidence. There may be some little mystification in this record due to lack of memory of the said correspondent of the late Rev. H. A. Macpherson, but it seems to me the main features of the account are good enough to be repeated.

Notwithstanding that certain eggs were seen by two London oologists which were taken in comparatively low-lying ground near Fordoun, and were believed to be—or pronounced to be—Snow-Bunting's eggs, I cannot accept the record. The situation was not the least likely, and it is easy even for the most experienced oologists to be mistaken without much more definite authentication than appears to have been exercised on this occasion. My own correspondent now cannot accept them as such. I have since seen one of these eggs—still in the possession of Mr. Milne at Auchenblae—and I have not a shadow of a doubt that it is the egg of a Corn-Bunting, though of small size.

I have, since the above MS. was written, received undoubted evidence of the Snow-Bunting nesting at a much more southerly locality than has hitherto been recorded, viz. on the spurs of the Grampians which stretch southward between Rannoch and Glen Lyon, at an elevation of some 2750 feet. Nests were found in July 1903, and besides, their breeding there has been well known to intelligent persons during the last few years. Mr. Norman B. Kinnear first informed me of it, and showed me one egg taken from the nest in July 1903; and by directions accurately provided, I was enabled to direct Mr. Norrie to the spot, assisted by a local guide, and photographs were obtained of the snowfield and scree beneath, and of the place where they are known to nest. I have already spoken of this in the introductory chapters.

Millais relates as follows: "Shooting at Dunalastair in August I saw a male Snow-Bunting. It was in full summer plumage, and I tried hard to procure it, but without success. From the presence of the bird at this time of year we might presume it had been breeding in the neighbourhood."

Snow-Buntings have also been met with at the height of their nesting season—midsummer—in 1905, on a mountain considerably further south in TAY than the situation I illustrate in the plate. There might be little harm done, I fancy, in naming the locality, but "discretion is the better part of valour," so I refrain until it be found whether the birds become established there, or have only been abnormally pressed southwards by inclemency of weather in the summer of 1905.

In the extreme east of the defined area of this volume, I at present consider it only a winter visitant; whether coming from the centres of foreign occupation, for the greater part, or of the young of home-bred birds drifting shorewards from their breeding places in the higher grounds of the mountain ranges I have defined, I allow it tentatively (*vide* our *Fauna of the Moray Basin*, under species). For my own part, I believe these wintering birds come to our coast from both the sources indicated above, and I shall certainly be inclined to base that belief upon such experiences as I have had, and on those of men I know, and not "upon the evidence of things not seen," and I hope my brother ornithologists will allow me some latitude in thus giving expression to my fixed belief.

Naturally the Snow-Bunting is most abundant in severe winters, and in these days that surely requires little or no demonstration.

In most seasons Snow-Buntings are known to arrive at the mouth of the river Tay in many succeeding flocks, as Col. Drummond Hay—long resident in the Carse of Gowrie—tells us from his own observation,—"flock after flock" in certain winds, in October and November. "None," he continues, "remain there, but, after resting, *move more inland*." So Col. Drummond Hay considered. But with all due deference, I am inclined to substitute for the above italics the following, "move further south."

My opinion is that our own home-bred birds first move shorewards, and in ordinary seasons remain at no great distance from their breeding haunts; but if severe winters intervene, they next remove their quarters further southward, following the shore-lines. I cannot believe otherwise than that we have a proportion of birds which are, individually, permanent residents all the year throughout.

## Family **ALAUDIDÆ.**

### Alauda arvensis, *L.* Skylark.

Old Gaelic name, *Uiseag.*

Resident. Fairly common. Breeds. Many immense flights are also, of course, migrants to our isles.

But it is by no means so abundant on waste lands and moorlands as it is known to be, for instance, in the Outer Hebrides and in some other parts of Scotland north of the Grampians. In the north-east Mr. Milne considers it "much scarcer than formerly" (writing in 1896). He blames the advance of agriculture more than the supposed destruction by Starlings. But Mr. Milne, I think, strikes the truer chord when he speaks of the comparatively recent practice of grazing cattle, and sheep especially, on our lower-lying pastures in winter and onward into spring, into April and May, and even later in the more northerly districts. I have witnessed this scores, if not hundreds of times, and any one who has been in the habit of "early spring trout-fishing" in Scotland (not being allowed to do so in England's preserved waters), if he happened to be an observant man, could surely not have been blind to the puddled state the enclosures were reduced to in a very few days by flocks of sheep put in to pick and trample the sprouting grass as bare as the palm of one's hand. In the space of two or three days the pasturage becomes reduced to a red till, almost in some cases like a newly harrowed field, and not a turf is left in green throughout the whole extent of the field. When no more sustenance can be got out of the grass, aided by feeds of turnip the sheep are penned in the next run or pasturage, and the same thing recurs. To me it seems indeed a marvel if a single Skylark returns to such devastated land, which is giving two rents (?) instead of one.

Skylarks are not to be called common, even up the valleys, except very locally. During a drive, for instance, of twenty miles between Pitlochry and Aberfeldy, the late Rev. H. A. Macpherson saw only two—both singing. These were both near Grandtully.

There are a good many near Lochearnhead, but they are seldom seen up Glen Ogle, according to Mr. Godfrey's observations during two years' visits paid to that neighbourhood.

Otherwise within the area their numbers vary, but they are seldom to be seen in any great abundance as compared with other parts.

Personally, I met with quite as great a scarcity in its numbers all through TAY, but they are commoner along the strath of Allan Water (FORTH), and again eastward of the watershed between that stream and the tributaries of the Earn; and I met with a good many even on the higher ground, between that and the first foothills. I found them also not uncommon on the barer grassy slopes above Loch Tay, on the north side, *i.e.* above the timber belt, and out upon the grazings below the heather ground. But it proved to be rarer —so far as I could see—up Glen Artney; nor do I recollect seeing any considerable number along the agricultural ground between the Sma' Glen and Methven. And we have the evidence of Mr. Charles Mackintosh of the comparatively small numbers he saw during a four days' survey of Strathbraan (*ante*, Introduction).

Eastwards they are more abundant along the Vale of Strathmore and through the lower slopes and haughs of Forfar and Kincardine.

### [Alauda arborea, *L.* Woodlark.

Of doubtful occurrence.

Don mentions it with the sole remark: "In the woods near Forfar." And Don says nothing about the occurrence of the Tree-Pipit. Mr. Nichol Simpson merely quotes, taking, I presume, Don for his authority. Needless to add, such will not meet the requirements of up-to-date ornithologists. I do not mean to say that Don's omission of the Tree-Pipit from his list is of great significance, as it is more than likely that neither the Woodlark nor the Tree-Pipit were at that time present any more than the former is present now. Dr. Dewar dismisses it as "erroneously recorded," and it is omitted from all other lists I have received.]

### Otocorys alpestris (*L.*). Shore-Lark.

Of rare occurrence.

Dr. Dewar rightly dismisses it thus: "Not found," *i.e.* in his district, between Montrose and the mouth of the Tay.

But upon the south side, Col. Wardlaw Ramsay ensured its record by sending one for exhibition to the Glasgow Natural History Society, which was procured at St. Andrews on 1st January 1870 (*Proc. Nat. Hist. Soc. Glas.*, 1870, vol. ii. p. 10). This I believe is now deposited in the collection at the Museum of Science and Art, Edinburgh (now, in 1904, designated the Royal Scottish Museum).

## Family **STURNIDÆ.**

### [Agelæus phœnicius (*L.*). Red-winged Starling.

Rare. Probably introduced.

Col. Drummond Hay records one shot on Sir Robert Menzies' estates on Loch Ericht side by Donald Cameron (*Scot. Nat.*, 1885, p. 307), and mentions that the "prevailing wind for some time past had been from the eastward" (*in lit.* to me, "Seggieden, 20th May 1866"). This specimen is now in the Perth Museum.

*Note.*—The late Duke of Argyll introduced some of these birds at Inveraray about three weeks previously to above date (see under species in our volume on the *Vertebrate Fauna of Argyll*), and Col. Drummond Hay became aware of the fact shortly afterwards (*Scot. Nat.*, 1887-9, p. 347).]

### Sturnus vulgaris, *L.* Common Starling.

Resident. Great abundance. Breeds. Increasing vastly still. Gregarious. Comes in strong pulsing waves or "rushes" ("I come; I see; I conquer" is the motto of this vast advancing army) from the south, and from the south-west, from TWEED and from SOLWAY in its first initiatory marches. It—or rather the two great divisions of the army of the south—received a somewhat curious check in its earlier movements at the borders of FORTH and TAY; and even at the present day cannot be said to have populated far into the west from this approach. But let me take up the chronology a little more exactly.

The old *Statistical Account* is silent as to it.

The *New Statistical Account* is almost equally so when it comes to treat of its presence in the valley of the Tay and Strathmore. Indeed, only two, or at most three localities are mentioned, viz. parish of Bendochy; two pairs nesting at Coupar-Angus, two years prior to 1845; and one record from the parish of St. Madoes, which lies along the borders of the counties of Perth and Forfar, on the outskirts, as it were, of Strathmore. There were only two notices of its occurrence by 1844 within the FORTH areas of Fife.

Don's "frequent in the mountains" is a curious entry, *i.e.* the mountains of Forfar. Apart from the fact that "mountains" are not the favourite haunts of the species, the dates are surprising, and unless ornithologists can reckon upon a still older occupation in Scotland bearing some resemblance to the isolations of the Squirrel and the Crested Tit, we cannot accept Don's account.

This, I fear, must remain a problem or be dismissed from our chronology in A.D. 1906, or indeed in 1894, when I wrote the fuller treatise.

In that account I have already traced the steps of its advance through Scotland generally; and it seems unnecessary to do more here than to go over the salient points after it had passed through the faunal areas of FORTH and CLYDE to TAY.

In Fife, Mr. John Fowlis, who had been at that time (1896) forty years gamekeeper on Scotscraig property, and whose memory ought to be kept ever green as having successfully introduced and increased Red Grouse on the, at that time, barren sandhills of the Tents Muir (see under species)—Mr. Fowlis gives us the best idea of the early appearance there of the Starling, which I may epitomise as follows, but referring my readers for the fuller details to my original article.[1]

Between 1856 and 1861 the Starling was considered a *rarity*, and at that time only appearing in summer. "But," says Mr. Fowlis when relating his experiences to my friend Mr. William Berry, to whom I was indebted for the collected notes, "four or five years ago (say 1890) they were in thousands, but in the following year there were few." Mr. Berry adds: "Personally, I have observed little change in their numbers, to the west of Scotscraig." He continues: "When I first began to collect eggs, about 1871, Starlings' eggs were easily obtained, but not in quantities, and these words are perfectly true at the present time," *i.e.* 1890. "Their numbers were not excessive."

On the other side of the Tay, in the Carse of Gowrie, Dr. Robert Robertson, of Fairbank, Errol, reports upon the extraordinary increase there, and goes on to say: "Fifty years ago (say 1840), only rarely could a pair or two be seen in the district. At present (1890) they are in thousands, and have increased steadily since the earlier date till now." He thinks that the first nest was found between 1832 and 1842. The greatest increase took place within the ten years 1881 to 1891. They roost in '*millions*' among the tall reeds of the river Tay about half a mile from Errol, and gather in thousands on the village church spire."

Col. Drummond Hay gives exactly similar evidence as to their increase at Seggieden, on the south slopes of the Sidlaw Hills. They began to show evidence of increase about 1882. Thousands frequent Mugdrum Island, etc.

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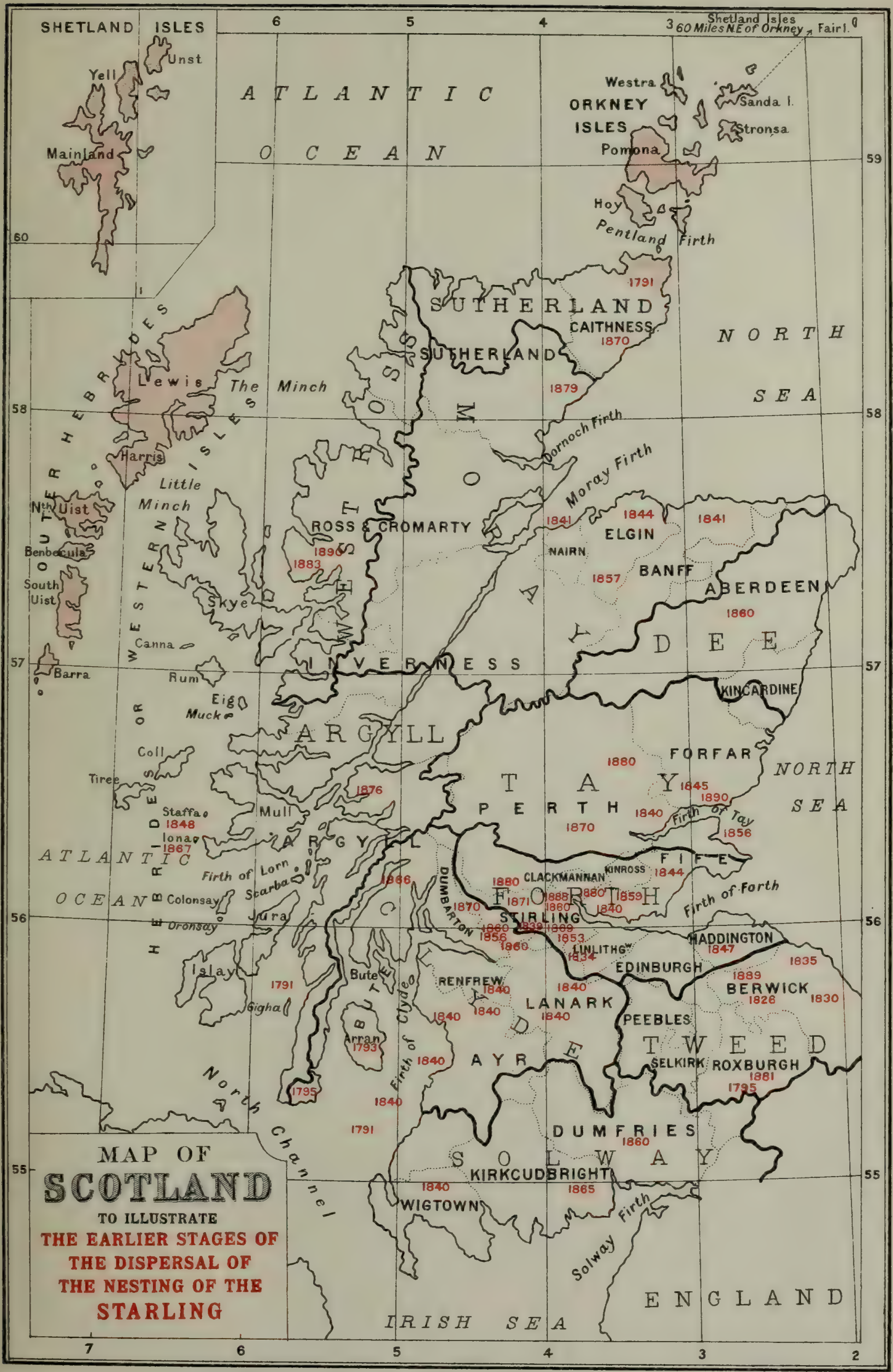
[1] "The Starling in Scotland, its Increase and Distribution" (*Annals Scot. Nat. Hist.*, Jan. 1895), with the map accompanying it. The said map is only intended to represent the earlier dispersal, as it would now be vain to map its almost universal distribution in Scotland.


SHETLAND ISLES
Unst
Yell
Mainland
60
6
5
4
3
Shetland Isles 60 Miles N.E. of Orkney
Fair I.
ATLANTIC OCEAN
Westra
ORKNEY ISLES
Sanda I.
Stronsa
Pomona
59
Hoy
Pentland Firth
1791
SUTHERLAND
CAITHNESS
1870
NORTH SEA
SUTHERLAND
1879
OUTER HEBRIDES
Lewis
The Minch
ROSS
58
Harris
Dornoch Firth
MORAY
Moray Firth
Little Minch
Nth Uist
Benbecula
South Uist
WESTERN ISLES
ROSS & CROMARTY
1896
1883
1841
1844
ELGIN
NAIRN
1841
BANFF
1857
ABERDEEN
1860
Skye
Canna
57
Barra
Rum
Eig
Muck
INVERNESS
DEE
KINCARDINE
ARGYLL
Coll
Tiree
OR HEBRIDES
1880
FORFAR
NORTH SEA
TAY
1845
1890
1876
PERTH
1840
Firth of Tay
1856
1870
Staffa
1848
Mull
Iona
1867
ARGYLL
ATLANTIC OCEAN
Firth of Lorn
Scarba
Colonsay
Oronsay
1866
DUMBARTON
1880
CLACKMANNAN
KINROSS
FIFE
1844
FORTH
1888
1880
1859
1871
1860
1840
1870
STIRLING
1839
1869
Firth of Forth
Jura
56
1860
1856
1860
1853
LINLITHGW
1834
HADDINGTON
1847
1835
Islay
Bute
1791
RENFREW
1840
EDINBURGH
1889
BERWICK
1826
1830
Gigha
Firth of Clyde
CLYDE
1840
1840
1840
LANARK
1840
PEEBLES
Arran
1793
1840
AYR
TWEED
SELKIRK
ROXBURGH
1881
1795
1795
North Channel
1840
1791
DUMFRIES
1860
SOLWAY
55
KIRKCUDBRIGHT
1840
1865
WIGTOWN
Solway Firth
ENGLAND
IRISH SEA
7
6
5
4
3
2

MAP OF
**SCOTLAND**
TO ILLUSTRATE
THE EARLIER STAGES OF
THE DISPERSAL OF
THE NESTING OF THE
STARLING

Faunal Areas thus —— County Boundaries thus........

J. Bartholomew & Co. Edinr

*Scale of English Miles*

0 10 20 30 40 50 100

▨ *From time immemorial. The dates are those of first ascertained occupancies.*

Near Montrose a marked increase is noted by Dr. Howden, but there is little account of their very earliest appearance to nest; but Mr. Atherston, an old sportsman, told Dr. Howden that the first he had obtained was in 1854, for the purpose of *fly-tying*.

It rapidly swarmed into the Blairgowrie district, "countless numbers roosting among the reeds of the Rae Loch; whereas, about 1841, the bird was almost if not quite unknown. Half a crown was freely given for a young bird from the nest."

Further up the Tay the first nest was found about 1870 or 1871, and great accessions to numbers were observed within the last sixteen years above Perth.

Then they entered DEE, coming from the south-west and south about 1860, when the first nest was found (*auct.* Geo. Sim).

Having sketched these earlier movements in the east, I take up the dispersal in the west or south-west, across from FORTH towards TAY, and along the Vale of Menteith. This appears to have been of much slower progress, and to have commenced about 1871. Indeed they rather seemed to fall off in numbers as compared with twenty years previously, or say about 1851, according to notes carefully recorded by Miss Mary Buchanan at Killearn in the Blane valley. There seems little doubt that the Starlings which first appeared in the Blane valley were offshoots from the SOLWAY and *viâ* CLYDE-centre, as I have, I think, pointed out more fully in my original essay. This locality, I must point out here, is within the FORTH area, and I mention it merely to show the direction of the advances eastwards. Thence, however, the force of the battalions seems to have turned eastwards and flooded the valley of the Allan Water, and thence reached into TAY. At the same time other birds appear to have left Stirlingshire and followed along the south slopes of the Ochils, and so reached into Fife, and great increase was noted about 1850.

They seemed to "shy" the north side of the Vale of Menteith for a time, but about 1871 they increased "prodigiously" on the north side as far as Callander, and Mr. J. Buchanan Hamilton of Leny was strongly impressed by their "surging," as it were, in successive "waves" soon after their first appearance as early as 1838, but he adds: "They did not penetrate into the Highlands much further than Leny," *i.e.* about the time he wrote the above notes to me (see further on under date).

Now, if the map be referred to, I think it will be noticed that there is a curious break, so to speak, between the recorded dates at localities to the south of the Grampian ranges all the way from the north-east along to the more south-westerly extensions,[1] and those recorded to the north of the same.

From the two divergent series of dates I think it will be seen that two armies began to get within hailing distance of one another with the great Grampian range only separating the hosts. The Grampian range, as I have pointed out, is our natural boundary between TAY and Strathmore, and DEE, and between TAY and MORAY in the north, and ARGYLL in the west. A careful comparison of the accumulated dates in this inquiry will, I think, show that the Starlings populating MORAY had little or nothing to do with those populating from the south. The MORAY birds had come *from the north* and *from the very old centres in the far northern Shetland and Orkney Islands*, which in turn had also, like the Norsemen, populated the outlying islands of the Outer Hebrides. But it is curious to find that even to this day the Starling has not taken a firm hold upon the west coast of WEST ROSS, and is only moving southwards still with apparently halting steps. (Soon, however, it would have become impossible for the naturalist or historian of these movements to say whence came these hosts.) When these great armies at last meet, there will be vast possibilities, and the new blood which will be introduced mutually when they do meet will possibly show an even vaster increase than ever has yet come before our notice.

Of the distribution at the present day it may seem scarcely necessary to speak, at least in any detail.

Except high up among the mountains and in out-of-the-way places, the distribution has become almost universal, and the time may not be far removed when the great armies will coalesce. Then, if I may continue to speak a little metaphorically—"*Then shall come the Deluge.*"

A few details, however, I will give of information received since I wrote the previous paper.

In the Fordoun district Mr. J. Milne found his first nest not before 1864; and since that year it increased enormously in the east of Forfarshire.

In Rannoch as late as 1901 Godfrey speaks of it as very rare, "a pair here and there in Rannoch."

Again, returning to the north-east, we find the statement, however, that the *New Statistical Account* includes it as "sometimes, though rarely, found in company with crows" in the parish of

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[1] It must be remembered the map only relates to these earlier movements, and has nothing to do with the present distribution.

Garvoch (DEE), and they are included as visitors to Bervie and Banchory Ternan (Leith Adams).

Now comes an interesting note from Mr. Godfrey. In 1904 he speaks of a great movement of this species. He saw it in force on the 27th June at Loch Earn. "Flocks were following one another, and continually on the move in the meadows, and at 8.10 P.M. one flock of at least a thousand birds passed over my head with a pronounced 'swish' of their wings. I do not know where their first resting-place might be, but I suspected that it might be Lairig Eala. On 28th June, in the morning, I saw a flock of about a hundred flying *down* the glen. In the afternoon I was informed of an enormous flock passing, and at 6 P.M. another scarcely inferior in size. In this flock I estimated that there were at least two thousand birds. This and many smaller flocks all passed *up* Glen Ogle.

"At the same instant one single bird was passing *down* the glen at a lower elevation, and below the big flock. On the same day my brother reported to me a similar extraordinary movement at Stronvar, Balquhidder (FORTH). These movements, however, were soon over. Perhaps not one hundred birds were seen by the 5th July, and these were seen flying *down* the glen towards Loch Earn at 7.30 P.M. On to 1st August small parties were seen on the hillside and at the foot of the glen." These interesting notes by Mr. Godfrey I have considered well worthy of reproducing *in extenso.*

Whatever the ultimate outcome of this enormous increase may be, one thing is patent and incontrovertible, viz.: To many people, several of whom I know personally, the Starling in its millions is becoming a poisonous pest, literally an insanitary and ever-increasing evil, and friends of my own assure me, and I know it to be a fact, so great is the evil in some places that the only plan to get rid of them locally is to cut down old and long-cherished bays and laurels to get rid of their unsavoury presence. Yet we do find still some rather grandmotherly legislation endeavouring to preserve the "bonny harmless birds"!

In 1905 I found it stated to be "on the increase" in most of the upper glens in the west and south-west of TAY, but still rare, or much rarer, in Rannoch. I found it myself commoner in Glen Artney, but only in isolated pairs here and there; scarcer in Glen Lochay, and absent, or at least none seen, in Glen Lyon, but a few about Killin and Kenmore.

In Strathmore and east of the river Tay it was much more in evidence. The Rev. Mr. M'Connochie speaks of it thus: "Common.

Thousands come to Balganies Loch every evening to roost. They rise with deafening noise, and the trees about are dark with innumerable birds. Flocks may be seen several miles off, large and small, converging about sunset."

From north-east Fife the same story is repeated. Mr. Berwick says: "Common; very rare fifty years ago."

### Pastor roseus (*L.*). Rose-coloured Pastor.

Rare. Occasional visitant. The old *Statistical Account* mentions the occurrence of one at Dunkeld (vol. xx. p. 457).

"There have been several occurrences, but none of late years," says Col. Drummond Hay, writing in 1887-8.

Mr. Horn then gives a record of a Rose-coloured Pastor obtained at Dunkeld on 27th September 1831. This may well refer to those mentioned above.

Then Col. Drummond Hay gives several instances in the Carse of Gowrie which are worthy of transcript, viz. one in full rose-coloured plumage was shot near Megginch in August 1832; and another just ten years later, *i.e.* in 1842, and this was also in full dress. At the same spot another; and under exactly similar circumstances, yet another was got a year or two after this. Yet one more again at the same place was obtained early in October. Again, seven or eight years ago Col. Drummond Hay felt sure he saw a young plumaged bird of this species "coming from the reed-beds of Mugdrum Island." This would be about 1879 or 1880.

The above curious recurrence of these birds at the same spot or the immediate vicinity, and about the same time of year, I think bears more than ordinary interest. Taking this example and many others of such recurrences of birds of the same species or of others, and comparing a large series of similar phenomena which can be collated from our regular records all over Britain, etc., who shall say that there is no line of migrational flights of species over well-known paths or across well-viewed valleys or forests or hills? Also, who can say with much certainty—or any, for that part of it—that birds have not a power of vision of which we have not the slightest conception? Or that this power of vision is not a strong factor in most migrational efforts in influencing their dispersal and subsequent distribution as residents and nesting species? As Gätké has often repeated, "Only when clouds obscure their vision from aloft do they descend where fog lies over land to seek a resting-place for the soles of their feet," or words to that effect. In times too when gales of wind bear them away over the western ocean, and this is repeated frequently, some catch up the land, and in another season those that survive may well be believed to follow a known route to such out-of-the-way spots, though any certainty of recurrence may not be established there for many generations. However that may be, and I have never seen the statement refuted, though scarcely a year passes but it is repeated by several able writers. But of course there are many other statements which, though not refuting the argument, still refuse to accept it. That of course is to be accepted as right in principle; but it may remain in the same doubt perhaps *for ever*, unless some original observer will throw a different light upon the whole subject of migration than has yet been done since the above belief or statement was made by Gätké, and at least in considerable measure verified by subsequent work done in other parts of the world.

In any case the recurrence of Rose-coloured Pastors at intervals at the same spot so often is at least eloquent of the great amenity of the place not only for Starlings—as we know without doubt that it is—and also for the rarer closely allied species. A more eligible site for a colony of Rose-coloured Starlings could hardly be found than Mugdrum Island on the Tay, *i.e.* for purposes of roosting.

Of this species there is one in the Montrose Museum marked "Laurieston," 1855. (Montrose Museum List.)

In 1846 one was shot about September, and was presented to the Perth Museum by Mr. Kinmont. This was one of the Megginch birds already referred to *supra*. It had been stuffed by Mr. James Ogilvy, at that time serving at Megginch Castle, and who was living in Errol in 1880.

The latest occasion on which the species appeared was about the above date, and in 1904 Dr. Dewar designates the species as "rare visitant."

## Family **CORVIDÆ.**

### Pyrrhocorax graculus (*L.*). Chough.

Appears to have been a doubtful resident at a former period, and to have been unknown for a long series of years, having—so far as I can find out with certainty—disappeared from coast and inland localities alike.

In 1777 Pennant spoke of the Chough as of much more universal occurrence "in the further parts of Glenlyon and Achmore," and it seems almost needless to repeat that Mr. Horn could hear nothing of it there or anywhere in the north-west, in 1879.

In the old *Statistical Account* there is no reference to the species within the bounds of our present area.

Now, the old local name of the Chough in most parts of Scotland where it appears to have been known, was "Red-legged Crow" or "Daw," but in England it seems to have been better known as the "Cornish Daw," and *later* as the "Cornish Chough." I mention this with reference to some remarks which follow later on—*q.v.*

There was one in Arbuthnot House, said to have been obtained in, or bearing date of, 1837. This is now in the Montrose Museum, but no data have been added to the record. Therefore I have no assurance that it was got anywhere in the neighbourhood.

Don also spoke of it as "resident in the mountains of Clova." Be that as it may, it seems almost indisputable that nearly all our accounts of Choughs breeding at inland places are sadly awanting in authenticity. Even where they are most abundant at the present time, inland cliffs are not their favourite haunts in Scotland, though I am aware of localities where a few pairs breed, or recently bred, three or four miles inland from the western seas.

Mr. Henderson, of Dundee, assured me *viva voce* that Choughs were not uncommon near Arbroath, and he added that "the birds were known to the boys there by that name." Mr. Henderson offered to obtain eggs for me (February 27, 1874), but had not done so by 1886, nor since.

Mr. Marshall, Stanley, had two birds in his collection, but these were not got within TAY. These are male and female, and were obtained for him in a locality in the West of Scotland, on the 28th December 1892, as he is careful to state in his very full list of his collection which he copied out for me. (I mention this here, in order to avoid any future complication that may arise, as Mr. Marshall's collection has been principally formed of local TAY birds.)

As I have said, there is very little certain evidence that many of the notes on the Chough nesting in Scotland in inland localities are reliable. I may be allowed to instance some at least of these here. Perhaps the best and most reliable record is that given by Rev. Mr. Lapslie in the old *Statistical Account* of the parish of Campsie, but even that remains open to doubt; and, as above given, those by Pennant and Don. I will presently explain why they cannot be accepted unreservedly. Alva precipices in the Ochils (FORTH) is another, of the reliability of which I have never been able to satisfy myself. Then we have Knockdolian Hill, inland a few miles from Ballantrae

(SOLWAY), but that I will leave to Mr. Service to ascertain more fully about when he comes to deal with that area. Going now much further north, we have one mention of the Chough at an inland locality, viz. on the Trailligil Burn, in Assynt (see our volume on the NORTH-WEST HIGHLANDS). Before speaking of the reasons I have for rejecting almost all such accounts, I will first refer to Mr. J. Buchanan's paper in the *Proc. Royal Phys. Soc.* (vol. vii. pp. 94-101).

Mr. Buchanan takes the hitherto generally accepted view that the Chough was a common inhabitant of inland localities through many parts of Scotland. I do not deny that it might have been, but I can find no sufficiently definite certainties relating to the statement. And I will now proceed to show what I think is good reason for rejecting at least the most of such accounts.

I believe, in fact, that many of these records are due to a very well-known and simple Scottish word which is pronounced exactly as a Scotsman would pronounce Chough—*Chough not being a Scottish word at all.* For explanation I refer my readers to the accompanying footnote.[1]

I am under the strong suspicion—if not the almost certainty—that Pennant and Don following and quoting partly, were misled by this pronunciation, and others at much later dates. Lapslie's note may have been from personal observation, or only from being told by local persons that "Shuchs" occurred in the Campsie Fells. Indeed, a local would-be authority writing in a local paper once spoke of a spot (the Sheugh Glen on my own ground) as a former haunt of the bird. A more unlikely place could hardly be found anywhere.

Corra Lynn of CLYDE is another inland locality quoted as a former haunt of the Chough by Mr. Robert Gray (*Birds of the West of Scotland*).

Suppose we admitted all these old records, then it would almost seem that we must include the Chough amongst those decadent species which appear to have retreated westwards, and long since abandoned inland localities and our eastern districts for the western coast-lines and islands, and for the most part taken up their later abodes on marine cliffs. In the west, as I have said, there are one or two places where there are still a few pairs which affect inland cliffs, but it may be possible that in the west they may not yet be considered quite so decadent a species, and so still maintain a precarious foothold in such unusual places. But it is evident that this remark can only be hypothetical, and as such may be dismissed. In support of the theory of decadence having set in, and if we look at the known distribution on the Continent, we must arrive at the conclusion that we have little chance to have any reaction or restoration of it from natural dispersal. Personally, I leave that an open question, difficult to solve, and I prefer to accept the explanation which I have endeavoured to give, especially as *Chough was never a Scottish word nor name for the bird.*

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[1] "Sheugh," lit. "a furrow, or ditch" (Jamieson), but also, as I know, applied to a small glen, or deep cut in a hillside or steep slope or brae-face.

"Sheugh" is pronounced *exactly* as a Scotsman would pronounce the English word Chough—thus, *Shuch, i.e.* soft, and not hard as in Shu*ck*, as a Cockney would say it. Similarly, *Chuch, i.e.* having both the first *ch* and the terminal *gh* soft, not *Tchuff*, as Chough is pronounced in English. "Sheugh" is pronounced both as I have given it above, and also longer, thus—*sheuch*, soft.

Connected with its sea-cliff haunts, it may not prove inappropriate in this place to criticise a statement by Seebohm, who says the Chough lives in colonies—which may still be partially correct—and then goes on to say, "and a haunt of the Chough is usually also a sea-birds' haunt."

I can only say that that is not the case in Scotland, or at least at any localities with which I am acquainted, and I may add I have been at a good many. Nothing has been more decided in my experience than the fact that the sea-cliffs inhabited by Choughs have been singularly destitute of sea-bird population. And I may add, that the only locality in England where I have seen the Choughs at their breeding haunts, viz. in Cornwall, the cliffs occupied by them were equally untenanted by sea-birds. If it is their usual habit to nest in colonies in England, that habit is an almost perfect stranger to any Scottish haunts I am acquainted with.

### [**Nucifraga caryocatactes** (*L.*). **Nutcracker.**[1]

Of doubtful occurrence.]

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[1] In reply to inquiries I had made, I am informed that Macgillivray's specimen is no longer in evidence in the University Museum in Edinburgh (which was amalgamated with the general collection in the now Royal Scottish Museum). And I fear also it is too late in the day to trace out any more particulars about the specimen which was stated by Macgillivray to be, at the time he wrote, in the possession of a Mr. Henderson. The Orkney specimen is, however, still preserved in the Royal Scottish Museum.

A reference to Newton's fourth edition of Yarrell—footnote—shows that Macgillivray did not say that the specimen he described was *shot* in Scotland (Yarrell, 4th ed., vol. ii. p. 332), but distinctly says only that "the individual from which I have taken the above description belongs to Mr. Thomas Henderson, Coates Crescent, Edinburgh." The fact is there was no such thing as a "Macgillivray's Scottish-killed specimen" (*op. cit.* p. 584). I merely mention the Nutcracker here as observation in a footnote.

**Garrulus glandarius** (*L.*). **Common Jay.**

Old Gaelic name, *Scriachaig coille* (old *Statistical Account*, xvii. p. 248).

Resident. Common. Retreating, however, north and north-westwards from older centres of greater occupation in the south-east and south, just as they become more persecuted by game preservers. But, as old Guthrie—of Capercaillie fame—used to say of the Hoodie Crow, "*It's a pratty, pratty bird, if it wasna just vermin.*" We have no records of the Jay in any localities to the north of FORTH and CLYDE when the old *Statistical Account* was penned, unless we admit that it was known at Luss, Loch Lomond, and included as having a Gaelic name by the Rev. P. Stuart. Even then it was not said that it occurred north of the CLYDE area.

Mr. James Lumsden in his paper[1] designates the Jay as "rare in Kincardineshire." But he was informed on good authority that at one time they were more common. In Forfarshire, at date, there was still a fair sprinkling of Jays (*auct.* Mr. P. Henderson, Dundee) around, "in all the wooded districts of the county, especially in the north and east." Gamekeepers, however, are waging war upon them, and reducing their numbers year by year. In some parts where they are not molested they are on the increase. At somewhat later dates I have not been able to substantiate the latter account

In Perthshire, Mr. Lumsden goes on to give a *résumé* of his information, which I epitomise. In 1875 it was plentiful (*auct.* the head-keeper, Mr. Macgregor) at Dunkeld, "and they bred there. We kill a great many every year." They breed every season on Castle Menzies estates, and it has increased within the last ten or twelve years in the valley of the Tay and Tummel, especially *in the former above Ballinluig.*

It bred about Strathyre Woods in Balquhidder (FORTH), close to our border.

In the north-east of Perthshire they are met with, but are on the decrease; in the north-west they are very rare. In the south they are now rare around Auchterarder, where formerly they were in considerable numbers (*auct.* the late James A. Haldane). There were a few around Moncreiffe and a few about Methven. Formerly it was abundant in the woods of the Carse of Gowrie, but these are "now reduced to a mere trifle; still a few where game is not preserved" (*auct.* Col. Drummond Hay *in lit.* to Mr. Lumsden).

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[1] "On the Distribution of the Common Jay in Scotland," *Scottish Naturalist*, vol. iii. p. 235, 1875-6.

In north-east Fife Mr. John Gilmour spoke of it as "rare in that part of the Kingdom of Fife," but as found in the north of that county and on the borders of the adjoining county of Perth. Dr. Walker (*Scot. Nat.*, vol. i. p. 19), says: "This bird, which was not uncommon at one time, has now become rare in the east of Fife."

The above will thus be found to bring up its history to about thirty years ago, or say 1876.

By 1877-8, generally stated to have become much reduced in numbers in the lower districts; but I agree with Mr. Horn as to its rapid increase beyond Ballinluig and up the Tay, as, for instance, at Aberfeldy, where I have myself been witness to the fact a little later—say in 1882. Horn, when commenting on this increase, and speaking of the Tay valley, does not pointedly refer to the sister valley of the Tummel, but Col. Drummond Hay "found it far from being so abundant as formerly"; I think, however, he was more especially referring to the latter valley. This is interesting if correct, and I see no reason to doubt the fact. The better-wooded areas are those of Tay; the Tummel and the Garry having also suitable hard-wood coverts, but scarcely of such large extent as the parent stream, though offering a quite good means of advance to Atholl. It may prove interesting to watch its advance westwards from the upper end of Loch Tay (we already know of its spreading northwards in ARGYLL, but that extension seems to me to have come by a different route, and more directly *viâ* CLYDE).

Now going once more to the north-east of our area, Don spoke of it as common at Glamis as long ago as 1813, and also at Brigtown and Kinettles, and as formerly unknown, and those seen as belonging to a later arrival of the species. This is interesting if correct, which there appears no reason to doubt.

Nearer the time of my writing now I may give the following data. Mr. Milne, in reply to my inquiries, tells me: "I have never heard of the Jay occurring near Laurencekirk, and have not seen it in the Fordoun district, so I am unable to say anything about it" (*in lit.*, 5th November 1903).

Mr. D. Dewar of Remony—gamekeeper there for some forty years—after mentioning the almost total extinction of the Magpie, said that the Jay survives because the woods are so dense as to afford it cover between Dunkeld and Loch Tay. Perhaps they may have become scarcer since March 1901, due to extra energy expended in their destruction about that time: Macdonald of Cluny having killed a number of them in 1900 and in 1901, trapping them with corn in a trap set for Wood-Pigeons, and also shot them coming to a decoy (Rev. H. A. Macpherson *in lit.* and MSS.).

The Rev. H. A. Macpherson mentions that on the 9th and 10th November 1900, "a pale greyish variety of the Jay—such an one as Brogli of Siena sold to me two or three years ago—was seen flying about the skirts of the wood facing our east window, *i.e.* at Pitlochry. The Maxwells assure me that their brother does not allow the keeper to kill either Owls or Jays, so this variety is comparatively safe so long as it keeps to the same vicinity."

In the vermin lists from Ballinlick only ten Jays figure between 1893 and 1903, and none are included in the lists I have received from the Breadalbane estates office, nor is a separate column given to them. This, however, seems a curious omission.

Now, in Fife, as Col. H. W. Feilden informs me (*in lit.*, Sept. 1904), fifty years ago—say 1855—Jays were not common in the Howe of Fife (*i.e.* in the valley of the Eden), and he adds, "I never found a nest."

The Museum of the old Perthshire Society possessed a sternum of one sent from Mount Melville near St. Andrews, which was purchased by the then authorities in 1881; and we find there is also one in the St. Andrews Museum, but without any data, which however had been presented by "Purves of Kinaldy." If this was got at Kinaldy it would constitute the furthest eastern specimen in Fife, so far as is known to me. Mr. W. Berwick includes it as "rare. A few pairs breed in Melville Woods, and one was kept as a pet at Ladybank quite lately."

The following notes from the Rev. J. B. Dobbie, who resided about four miles to the north of Perth city about fourteen years ago—say 1890—may point to a line of general advance—though I do not insist upon this without clearer sequences of dates. He says: "It certainly did not reside in the woods of my parish during my time, though it was evident from the stuffed specimens in gamekeepers' houses that it had done so not long ago. I knew it, however, to be common in the woods of Glenfarg, *i.e.* near the Bridge of Earn, on the north slopes of the Ochil Hills, at the present time (1904), and I have been informed that it is abundant in the Meikleour district. Mr. Berwick, farmer, Pathcondie, Collessie, assures me that it is very abundant in his neighbourhood."

There is a remark in the old *Statistical Account* which may be worth recording, or rather worthy of repetition, viz.: "Jays are the greatest enemies to the pigeon-houses." I do not remember having ever had this statement confirmed.

Though not common apparently in the north-east and north side of Fife at the present time, yet it seems to exist on suffrance in the Carse of Gowrie. My friend, Mr. James Davidson, was present when a Jay was shot at Kinfauns, and he was told on that occasion that at least one brood had been reared there in the summer of 1904, and for several years previously. Also, Mr. Stuart Gray saw several at Rossie Priory two or three days before this one was shot (Dec. 1904, say), but they were not known to breed there. Their distribution, however, appears to extend all along the Carse of Gowrie, though nowhere perhaps very abundantly.

The Rev. Mr. M'Connochie speaks of the Jay at the present time as "exterminated," *i.e.* in his immediate neighbourhood. About fifteen to twenty years ago several pairs inhabited Monteathmont moor—or the woods adjoining—but most of them were poisoned soon after. There are still some Jays in the country further east.

Dr. Dewar adds the information that about eleven years ago—say 1891 or thereby—at Noranside, near Glen Ogil (Forfarshire), the bodies of a considerable number of Jays had been fixed up by the keeper against his shed. Dr. Dewar then adds: "I have not seen Jays alive."

### **Pica rustica** (*Scop.*). **Magpie.**

Old Gaelic name, *Pioghaid* (old *Statistical Account*, xvii. p. 372).

Resident. Common. Decreasing.

Once abundant, but now much reduced in numbers (Col. Drummond Hay, 1878).

In 1879 Horn says: "Formerly common in Strath Tay and near Pitlochry, but now seldom seen. The only district where it is seen regularly is in Glen Quoich, near Amulree."

By 1896 Mr. J. Milne tells me there are still a few in the east of Forfar, but it is "not so abundant as formerly."

At the date of 1892 Mr. D. Dewar tells me the Magpie is "quite extinct around Remony, Loch Tay" (*in lit.*, 27th Nov. 1902), "but Jays are still common. But I learn that they are still in considerable numbers, but quite locally, in the east in 1904. There are still a few where game is not quite so strictly preserved. In fact, their increase or decrease appears to be almost entirely dependent upon the circumstances of game-preserving."

Breadalbane vermin lists yield 190 Magpies, and they now appear in diminishing quantities. Thus: In 1891, 16 were killed; in 1892, 4; in 1893, 15; in 1894, 11; in 1895, 61; in 1896, 36; in 1897, 24; in 1898, 7; in 1899, 6; in 1900, 8; in 1901, 8—total 190 in eleven years.

On the Atholl estates 176 were paid for at the estates offices in the past ten years. The most in 1896-7 were 30; next 25 in 1901-3, and 24 in each of the seasons 1897-8 and 1898-9. The fewest were obtained in 1903-4, when only one was got; 12 in 1902-3; and 13 in 1905-6. The average in the ten years is thus 17·6.

Millais speaks of it as even rarer within his experience. He says: "Now a rare species. I have seldom seen more than two in a whole year."

Similarly Magpies are rarer around Guthrie, where, however, the Rev. Mr. M'Connochie has seen as many as six together in a plantation near the road, and a few pairs still nest near Carmyllie.

### Corvus monedula, *L.* Jackdaw.

Old Gaelic name, *Cathag* (old *Statistical Account*, xvii. p. 248).

Resident. Abundant throughout the area. Universal and still increasing, and violently assertive. Gregarious.

The Jackdaw swarms along the whole coast-line, and is especially numerous in the low cliffs near Arbroath (see *A New History of Arbroath and District*, by T. F. Dewar, M.D.).

Numerous; nesting under bridges and along with Rooks, as is their custom elsewhere (J. M.).

Far too abundant round Pitlochry. Such as are destroyed are shot off their nests by the keepers in the evenings (Rev. H. A. Macpherson).

Breed in rabbit-holes in hundreds near Killin.

In the south-west numbers on the hillsides near the foot of Glen Ogle in the latter half of July, and common in the woods of Edinchip, and also in the railway cuttings near Lochan Eala (Godfrey).

Increasing over a large extent of country. Thus: Breadalbane estates offices yielded payments for 6098 in eleven years, as follows: 546 in 1891; 460 in 1892; 542 in 1893; 433 in 1894; 223 in 1895; 533 in 1896; 654 in 1897; 485 in 1898; 633 in 1900; and 905 in 1901.

*Obs.*—There is evidence that in England the Daw was called "Chough," and the true Chough was named the Cornish Daw, and also the Cornish Chough. But I cannot find any evidence that

Chough and Daw were interchangeable names in Scotland; indeed, we have seen that Chough was never a really Scottish word.

### Corvus corone, *L.* Carrion-Crow.

### Corvus cornix, *L.* Hooded Crow.

The former is resident. Common. Assertive, and spreading northwards. Breeds often as one species and cannot really be separated except as mere forms in colour, as all sorts of intermediate patterns are found in their plumages, though this is not perhaps so noticeable in this country as in Northern Europe and eastwards.

Hepburn states that the Carrion-Crow was never observed by him in the Highlands until he crossed the Grampians, coming *south from the valley of the Spey*, and until he reached Blair Atholl; but that the other form, or Hooded Crow, was everywhere widely distributed over field and moor to the north of the range (*Zool.*, "On Birds and Quadrupeds in the Northern Districts of Scotland," 1847, pp. 2010-44).

Just according to the amount of vigour with which these birds are trapped and killed down do they appear more or less abundant in different localities, but it seems almost impossible to reduce their numbers permanently, as fresh hordes come across seas by an annual and immense migration to take the place of those destroyed.

They appear to be somewhat scarcer in the south-west about Glen Ogle, as observed by Mr. Godfrey, but the "Hoodie" is commoner than the Carrion. The "Hoodie" appears to be the commoner on the Moor of Rannoch.

At the present time Dr. Dewar reckons the "Hoodie" the commoner also in the east of Forfar.

In the Howe of Fife Col. H. W. Feilden remembers clearly *both forms* pairing together and nesting in the Mount Woods, Rankeillor, in 1853. "The keeper shot the birds and gave the eggs to me."

All the old *Statistical Account* notices, at least in the north, may be taken as referring to the northern or Hooded form, with trifling exceptions.

The name "Huddie" was applied locally to both forms in the Carse of Gowrie, but not so frequently to the Carrion-Crow, as that form was not the more abundant of the two in older times. Intermediate forms were often met with by Col. Drummond Hay there, "as long as he remembers."

It was as long ago as 1843 that Yarrell pointed out the facts as to their pairing and breeding together (*op. cit.*, 1st edition, p. 86), and he does so at some length, on the authority of "a writer in the *Field Naturalist*" in Forfarshire, and quotes a similar occurrence in the west at Arrochar (CLYDE).

In 1847 we were, as stated distinctly, told of their apparent scarcity north of the Eastern Grampians, and it would almost seem that they were longer of advancing across these higher ranges than they were of dodging round by the western avenues of advance.

At Ballinlick on Tay, a comparatively restricted area, 81 were accounted for in the ten years between 1893 and 1903, and in this list, as indeed in most vermin lists, both forms are included under one heading. Between 1891 and 1901, on the Breadalbane territories of Tay, 4459 were accounted for. This shows a very steady crop annually. The fewest were got in 1900, but showed a tale of 332.

In Atholl 4009 were killed between 1894 and 1903-4. The most in 1896-7, when 468 were got; next 450 in 1897-8; and 446 in 1894-5. The smallest numbers were got in 1899-1900, when 337 were destroyed; then 342 in 1903-4; 365 in 1902-3; and 377 in 1898-9.

### **Corvus frugilegus**, *L.* **Rook.**

Old Gaelic name, *Creumhach rocus* (old *Statistical Account*, vol. xvii. p. 348).

Resident. Abundant. Breeds. Increasing and spreading all over. Gregarious.

The old *Statistical Account* does not make it always quite clear that "Crows" are "Rooks," but it testifies to the good that the Rook was credited with doing in those days. They fed largely upon "Cob-worms" (*Tipulæ*) in the newly-sown fields of oats. This was proved by dissections, "and not one grain of oats was found" (old *Statistical Account*, vol. v. p. 560). There is a terrible difference between the education of the Rooks of 1790, say, and A.D. 1900!

An old Act in the first Parliament of King James I. *re* "biggin of ruikis in trees" was "ordained." *Item*: "For thy that men considderis that ruikis biggand in kirks, zairds, orchards, or trees, does grate skaith upon cornes; it is ordained, that they that sik trees pertainis to lette them big, and suffer in na wise that their birdes flie away. And where (quhair) it be tainted that they big and the birdes be flowin, and the nest be founden, the trees sal be fairfauted to the King (bot gif they be redeemed fra him throw them that they first perteined to) and heavin down, and five schillings to the Kingis unlaw." The above Act for their destruction I have copied out from the old *Statistical Account* (vol. xv. p. 560).

Pope Pius II. (Piccolomini), who wrote at the end of the fifteenth century, and who made the curious and erroneous statement that "there are no wolves in Scotland," also stated—no doubt under misconception of the above Act—that "the Crow is unusual in the country, *i.e.* Scotland, and consequently the tree in which it builds is the King's property." This error is quoted over again in the *Trans. Gaelic Soc. Inverness* (vol. xxiii. p. 95, in 1897, *q.v.*). Another Act was passed for the same purpose—the extermination of the Rook in Scotland—also in 1457; and we also find that a similar Act was passed in England in 1533.[1]

There is also yet another old Scots Act, or amendment of the first passed in the same year of that reign, which provided for the protection of "ola wilde foulys in mortyme quhen thai may not flie"; and it then goes on to ordain that "all men eft their power distroy nests and eggs of birdes of foulys of rief."[2]

I fear that the misdeeds of the twentieth-century Rook gather in evidence from year to year. Shall I rehearse them? No; I have said enough before, but I can only add—I fear he is past praying for. Rather let me add to the credit side of his account. There seems not a doubt that amongst the good things he does in dry seasons when he cannot "clean the bristles off his moustache"(!), he makes a splendid hunter for things nearer to the surface. He persistently hunts for voles and field-mice in their shallow runs, and goes about it in the most wise and systematic manner. It reminds one of the cautious advances made by the Song-Thrush when in earnest quest for the "early worm," so:—walking softly, hopping gently, listening, head on one side, standing rigid; then another cautious advance, and finally a plunge of his still bristly beak and the successful impaling of a field-mouse: "quite as luscious," he says to himself, "as a dirty wire-worm." Alas! the "flesh-pots" have led him far astray.

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[1] The first of these was against the "Ruk" and "Crawys" and other "foulys of reif." In the English Act there was included also the Jackdaw, and also the Carrion-Crow. In this Act the Jackdaw receives the title of "Chough," "a very ancient English name for the Jackdaw"—the true Chough as now known and accepted being known by the name "Cornish Chough" (Turner), or "Caddo" Chough or "Ka" (Gesner) of other writers. The late Rev. H. A. Macpherson, who appears with his usual care to have gone into this question very fully, was satisfied "that the Jackdaw was the bird proscribed by the English Parliament" (see *The History of Fowling*, by Mr. Macpherson). And I find also that Sir Arthur Mitchell had arrived at the same conclusion as regards Pope Pius's mistake in his appreciation of the meaning of the old Scots Act, and Sir Arthur fully explains it (see *List of Travels and Tours in Scotland*, 1296-1900, p. 24). For a copy of this most interesting work I am indebted to my friend the author. It was published first in the *Proc. Soc. Antiq. Scot.* (vol. xxxv., Edinburgh, 1902). I have already drawn attention to the other misunderstanding exhibited by Pope Pius II. as regards the wolf in Scotland. It may be instructive to add that the time set for the inspection of the trees to ascertain whether there were nests left was "at Beltane," as I find quoted by Sir Arthur (*op. cit.*).

[2] And this is still more fully treated of in Hume Brown's *Early Travellers in Scotland* (p. 27, footnote, *q.v.*).

### **Corvus corax**, *L.* **Raven.**

Old Gaelic name, *Fitheach* (old *Statistical Account*, vol. xvii. p. 248).

Old *Statistical Account* localities as usual, viz. Weem, Monzie, Dowally.

Resident or partly migratory. Common, especially in the upper districts. Breeds.

Appears to visit Rannoch side rarely between April 7th and 25th, but, Mr. Godfrey says, becomes common after that time, and seems to descend from higher grounds to the lower reaches of country. They come down the river Ericht, and are probably composed of both old and young, leaving their more alpine haunts where they nested.

The keepers at Marble Lodge in Glen Tilt assured the late Rev. H. A. Macpherson that the numbers of Ravens which are known to nest in the forest receive large additions to their numbers in winter (MS. of Rev. H. A. Macpherson).

Mr. D. Dewar has often taken home as many as seven Ravens in one day, all old birds, trapped on his Remony beat, but he is of opinion that they are not nearly so abundant as they used to be (see vermin lists, *ante*). He adds that in his experience it is only where sticks are not available that they build their nests with heather.

The Raven breeds in the north of Forfar, and visits the lower grounds only at rare intervals in the east of the county.

Between 1895 and 1897 Ravens bred in the glen not far from the Glenalmond Academy, as I am informed by Mr. Norman B. Kinnear (*in. lit.*, 2nd September 1904).

In Fife, says Mr. George Bruce, Ravens bred recently (*i.e.* prior to 1895) in Ravenscraig, at the west end of the Lomonds; also at Craigangow on the east Lomond; and in Ravenscraig Castle, near Kirkcaldy (FORTH).

At Lochearnhead Godfrey only saw one bird on the 10th July 1903, but a pair on 23rd July 1904; and he ascertained about a nest that latter season in Glen Ogle.

Between the years 1894 and 1904, 117 were paid for by the Atholl estates office, of which the following is an analysis: the most were got in 1894-5, when 26 were obtained; next 19 in 1896-7; 17 in 1895-6; and 15 in 1903-4. Fewer numbers were killed in 1898-9, when only 2 were obtained, and 5 were killed in 1897-8.

In the Breadalbane lists between 1891 and 1901, 576 Ravens were paid for by the estates office. The most were in 1897, viz. 99; next came 66 in 1901; then 60 in 1894; and the fewest were got in 1892, when 36 were obtained; and next 38 in 1895—average 53·4.

Ravens are not really rare, because each wilder district holds a few pairs. Thus, in August 1905, four or five may be seen together, being old and young of the season which have escaped destruction. Many contiguous sites could be enumerated. Mr. W. Evans found, for instance, several such family parties at five different localities, between the 6th and 20th August 1905. It is quite an interesting study to watch the wonderful evolutions and play of wings these birds resort to, the young practising under the tuition and example of the parent birds. The old Gaelic saying, applied principally to the "Hoodie Crow," is equally apt if applied to his bigger cousin, *e.g.*, "The Hoodie has a twist of his own." This is applied to any peculiar prank developed by any precocious youth.

## Order **PICARIÆ.**

### Family **CYPSELIDÆ.**

**Cypselus apus** (*L.*). **Swift.**

Negative. No notes in old *Statistical Account* for Perth.

Summer visitant. Common. Breeds in colonies, but appears to travel to a great extent singly or in family parties.

Of the present distribution it may be put down, several pairs in the village of Fordoun, as an example of the general distribution of the species over the area wherever towns exist which have accommodation suited to their requirements.

I have found them frequently also in villages or small hamlets where there were few places that at first sight would convey the idea of suitability. For instance, I have found them breeding in thatched houses, and under the eaves of quite low cottages, the eggs laid simply upon the crown of the walls under the eaves and last "bell-edge" slate, though I do not consider the latter situation at all common. These divergences from custom appear to me to be simply caused by "supply and demand," or, in other words, congestion of more choice residences!

Mr. J. Milne finds that the Swift arrives with great regularity between the 19th and 22nd of May, and he remarks that in his district it is seldom seen after the 1st of August.

One of the best things in Mr. George Bruce's book (before cited) is his description of the flight and habits of the Swifts which are so abundant in and around St. Andrews. This account is a very pleasing picture of an observant eye.

Swifts breed under the eaves of the hotel at Lochearnhead, and have done so for many years to my own knowledge; and the birds, to the number of some three or four pairs only, travel up the sides and valley of Glen Ogle, or later in the year accompanied by the young. They do not seem to increase in numbers.

It is almost unnecessary to minutely define the distribution; but a few notes out of many may be added. They are abundant about Kenmore and Aberfeldy, as noted by Mr. W. Evans in 1857; and he met with several examples on the summit of Mheall Gruaidh in May of the same season (3280 feet). I have seen upon two occasions Swifts hawking and capturing Crane-flies at high elevations; once quite certainly at about 2500 feet elevation (on Ben More, Sutherland), and again, not so surely, on Farragon in TAY, and this as late as August. In the instance given in Sutherland, two were flying low over a very high-lying loch, where the Snow-Bunting's nest was found by Messrs. Peach and Horne, and I noticed most distinctly that the Crane-fly was caught, though I do not seem to have written the note down.

I know of two localities where Swifts breed in the highest cliffs of the Grampian range. One of these is within the limits of our present area, and the other is just outside, *i.e.* upon the northern face of the cliff on that side of the watershed (see the *Fauna of the North-West Highlands and Skye* under the species).

*Obs.*—I do not require to do more than just refer to the Strathardle tale of Alpine Swifts nesting in a high precipice in that valley —a tale long told and several times repeated, but scarcely necessary to say utterly unauthenticated (see *Annals Scot. Nat. Hist.*, 1897). This tale was told to me many, many years ago, and I never considered it the least worthy of confutation or repetition.

During my rapid survey of TAY in May and June 1905, I remarked that the Swift appeared in most unusual numbers, both far up the western glens, even nearly to the uttermost recesses, and to the other more lowland haunts in the plains and in the towns and villages. I have never seen so many anywhere in Scotland.

The Rev. Mr. M'Connochie relates that on one occasion he watched quite a number of Swifts following a reaper round a hay-field and catching the disturbed insects.

All correspondents agree as to the unusual numbers in the country in 1905, though in the extreme east they did not appear to me to be quite so abundant at the time I was there; but Mr. Milne wrote me later that they were quite unusually abundant by the end of June.

In the north-west of Fife, up to date of 1905, it does not appear to have been considered quite so abundant as in other parts. Mr. W. Berwick seems to consider it as "rare," or at least "not very common," but "a number always found at St. Andrews old castle."

## Family **CAPRIMULGIDÆ**.

### Caprimulgus europæus, *L.* Nightjar.

Summer visitant. Fairly common. Breeds.

There is an early dated one, April 1845, in the Montrose Museum. It does not appear to be considered at all common in the east of Strathmore, or at least in Forfarshire within the ten-mile radius, which Mr. Milne is my authority for around Auchenblae—"not," Mr. Milne says, "within his recollection." He instances, however, localities where he has known the nest to have been found, such as the woods on the side of Strathfinella, etc.

Mr. George Bruce speaks of it as more abundant formerly. He says: "Fifty years ago it used to frequent Priorsmuir, Kinglassie, and Tents Muir," but he continues, "I had not got the eggs for many years" (writing in 1895); and further he states his belief that "it has almost disappeared from the St. Andrews district." He relates that "the last I got was a fine male shot at Cambo on the 14th August 1857, and I had another in May of the same year also from Cambo." Further inquiries, however, do not suggest ideas of greater scarcity in recent years.

In the north-east, as early as 1849, there is an entry in the MS. catalogue of the collection of the late Mr. Macgillivray (in my possession) of "2 eggs, *Caprimulgus europæus*, Dunes, Kincardineshire, presented by Mr. Wm. M'Tier."[1]

Millais writes in his notes, kindly prepared for me, as follows: "Nightjars seem to breed very late in Perthshire. When grouse-shooting at Murthly on August 12 I have almost annually come across two pairs of Nightjars, with their young sometimes unable to fly, close to the same spot—a bare patch on the open moor several hundreds of yards from the trees."

In the east of our area the Rev. Mr. M'Connochie knows of several pairs in the neighbourhood of his manse and parish. Two were shot last year, and two more were flushed by dogs, and he saw one on a small moor in the parish, and they are heard "churring" nightly in many parts. Thus it appears that they are pretty generally diffused through the county.

In the north of Fife Mr. W. Berwick adjudges its value as "not very common." He adds: "I hear one often here [*i.e.* at Pathcondie] during the night."

## Family **PICIDÆ.**

### Picus major, *L.* Great Spotted Woodpecker.[2]

The Great Spotted Woodpecker can only as yet be valued here as an autumn and winter visitant, of more or less regularity. It turns up almost every winter in greater or fewer numbers, while in some years it comes to us in very considerable abundance. Of late years also it has developed more and more inclination to remain later into the summer, as will be seen below, and we know that the species has of late nested again in the southern districts of Scotland (FORTH). It usually visits us between October and November, and stays on till January or February (but see below).

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[1] MS. catalogue of the late Prof. Macgillivray's collection of eggs of British birds in his own handwriting.

On the fly-leaf, in the writing and under signature of Canon H. B. Tristram, is an explanatory note as follows: "This book was the property of the celebrated naturalist, Mr. Wm. Macgillivray, and contains the catalogue of his collection of eggs, wholly in his own handwriting. After his death his collections and catalogue were purchased from his widow by Mr. J. R. Wise, from whose hands the greater portion of the cabinet passed directly to me.—(Signed) H. B. TRISTRAM, Castle Eden, Oct. 1854."

And this has finally passed into my hands by the kindness of my good friend Mr. Edward Bidwell, who got it at the sale of the late Mr. P. Crowley's collection. He thought it might prove of some interest to me and to Scottish ornithologists. And accordingly he sent it to me.

[2] For an account of the former abundance and subsequent decrease of this bird as a nesting species in Scotland generally, refer to articles by me, "On the Decrease in Scotland of the Great Spotted Woodpecker" (*Zool.*, March 1880).

And also a later paper on the same subject, "The Great Spotted Woodpecker in Scotland" (*Annals Scot. Nat. Hist.*, January 1892).

But, though these papers are of general interest in the connection, there being no direct references to the bird as breeding in the area of my present treatment, I only refer to them thus in a footnote.

Col. Drummond Hay speaks of it as of such common occurrence as not to require special treatment or any attempt to enter into details. Of course he refers to autumn and winter occurrences only. However, he suggests the probability of its having at one time nested in the Black Wood of Rannoch, but I have been unable to gather any proof or indications of the fact. I certainly looked for "borings," but found none on Crosscraig, on which property there is still a considerable portion of the old wood remaining.

Of its migrations we may consider that 1868 appeared to be a record year, and that a "rush" of the species took place along our eastern seaboard (vide *Proc. Nat. Hist. Soc. Glas.*, vol. i. p. 237, December; and *Zool.*, 1869, p. 1512).

In the *Scots Magazine* (vol. lxxix. p. 95), occurs a passage which is of sufficient interest to be quoted fully. It is as follows:—

"Greater Spotted Woodpecker (*Picus major*, L.)—Specimen shot by the gamekeeper at Melville House, in Fife, near the beginning of February. It appears that a few pairs breed yearly in the old woods of Melville and Rankeillor." The individual shot in February was a male of full size in perfect plumage. The above note is signed "N., Canonmills, 25th Feb. 1817": *i.e.* Neil (*ex* a MS. index, prepared for me by Mr. P. Grimshaw, of the Natural History Notices in the *Scots Magazine*).

There is one in the Museum at St. Andrews with the inscription —"Dr. Hill, Boarhills, 24th September 1868," and another, "C. Duncan, Killocks Den, 3rd October 1868." This, as indicated above, was a year of an unusual rush. And two more are recorded from the Glen Woods, Forfar, shot by the keeper the same autumn, and were male and female. These are now in the Castle of Drumtochty.

But the more interesting account of the occurrence of a pair of birds at the last-named locality, is as follows:—"Referring to a former communication, Mr. J. Milne writes under date of June 24, 1904: 'The pair of Great Spotted Woodpeckers that were first observed in the Glen Woods in Dec. 20, 1903, are still at work amongst the dead trees. One of them was seen near the kennels hammering away at a lime-tree on June 5.'"

This communication from Mr. Milne is of much interest, even should they not have nested in 1904. This becomes specially so when we take into consideration the well-known fact of its having returned—or extended its breeding range—once more into the southern districts of Scotland south of FORTH and CLYDE. There are some naturalists who will not admit that any sequence in such matters exists, *i.e.* between migrations and dispersal, or at least will not acknowledge any such, and continue to marvel on about these great mysteries. I really think, in some cases at least, that the fear of theorising gets the better of common-sense deductions, though it may well be granted that an axiom cannot yet be laid down which will rule all cases, or equally affect all species. My readers will, I hope, at least grant that I have always upheld the *close connection between congestion and migration*, and *thereafter between migration and dispersal*, and on many occasions have illustrated the causes and effects, so far as common-sense and many years' study of these phenomena can claim to have warranted my opinions. At all events, while I have often been doubted, or had doubts thrown upon my deductions—which may not be seriously objected to in itself—still nobody has projected anything better that I have seen or been made acquainted with during all these years—say since the commencement of the inquiry of the British Association as to the migration of birds at lighthouses. Nor, that I am aware of, has any one even taken up the phase of the subject above referred to, but has invariably, so to speak, "shied" it. This in some cases may be entirely due to their not "reading back," of which we have many evidences in modern recording.

I have many other records, with full references, of the autumn and winter occurrences of this bird within this area, but it scarcely seems necessary to detail them. The following are a few showing dispersal: Fife, and also Perth and Forfar, in 1887 (see *Scot. Nat.*, 1887-8, p. 295, etc., etc.). Fife, at Scotscraig, 15th Nov. 1872. In Perth, one, in Mr. P. D. Malloch's register, 26th Nov. 1891, got by Mr. R. Kay, Murthly. Forfar, one, 26th Nov. 1898, *auct.* Dr. F. T. Dewar. Fife, "Often got about Cambo," *auct.* keeper to Mr. George Bruce, etc. (*vivâ voce*, 1895, etc., etc.); and later, "several shot in the parish of Guthrie about seven years ago" (say 1898).

Since the above lines were written I have heard again from Mr. J. Milne that "by all appearances the Woodpeckers have left us, for Mr. J. Wyllie tells me that he was through the woods on the

26th November, while the ground was covered with snow, and he could find no evidence of any chips upon the surface of the snow" (*in lit.*, 16th Dec. 1904). Let us hope, however, that this does not necessarily indicate their final departure, and let us look forward hopefully yet. However, "hope deferred" is all I can record for 1905 since the above was written. I visited the place where they had remained so long the previous season, Mr. Milne having pointed it out to me. There had been no word as to their further visitation. Even yet there is no cause to despair; but it is earnestly desired that if they do put in a reappearance the Laird of Drumtochty will issue the most stringent orders for their preservation, as I understand he did before while they were in evidence.[1]

Millais mentions that he has a specimen killed near Leuchars in Fife, in October 1882, and I have records of its occurrence in north-east Fife from Mr. Berwick.

## [Picus minor, *L.* Lesser Spotted Woodpecker.

Of doubtful occurrence.

One is stated to have been seen at Sachob, near Methven, and to be now in possession of Mr. John Pullar, bird-stuffer, there (v. *Strathearn Journal*, 24th October 1903).

Another was recorded as having been got at Craigo, Kincardineshire, by Dr. Howden (*Annals Scot. Nat. Hist.*, 1899, p. 153), but the editors expressed considerable doubt in brackets as to the identification, and to date I have no further verification of it.

In 1904 Dr. F. T. Dewar marked it in his careful list "Rare or doubtful visitor."

I have failed to obtain any further communication from Mr. Pullar, so pending verifications I must exercise square brackets.]

## Gecinus viridis (*L.*). Green Woodpecker.

Status remains a little uncertain, but the following accounts are given:—

Mr. Marshall, of Stanley, related to Col. Drummond Hay that he saw and watched two Green Woodpeckers at quite close quarters for some time (*in lit.* to Col. Drummond Hay).

Dr. Dewar simply enters it as "Rare."

There is one in the Perth Museum which was obtained by Mr. D. Dewar in May 1892. Mr. Dewar, in a letter to Mr. W. Evans regarding this specimen, refers to a visit he had received shortly before from an "elderly gentleman" (whom I believe to have been Col. Drummond Hay, and I think Mr. Evans was of the same opinion). I saw Mr. Dewar in the summer of 1905, and have the fact from his repeated assurance.

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[1] Just at date of first proof of this sheet, I hear that it is credited that the Great Spotted Woodpecker nests in Central Perthshire, but my information is too fragmentary to date (10th May 1906) to warrant my saying more in this place.

As long ago as Don's records, he includes the Green Woodpecker in his list; but while adding no further remarks as to it, he also includes, with no remarks, "*Picus medius*—Middle Spotted Woodpecker" and "*Picus minor*—Lesser Spotted Woodpecker." This makes his note valueless for exact purposes.

I may mention here that I have heard the weird strange laughter of the Green Woodpecker many times in Cambridgeshire, in Devonshire, in Norway, and in Transylvania, and twice to the best of my belief in Scotland, once in CLYDE and once in FORTH. On the former occasion I was standing at the front door of Arden House—the home of my friend Mr. James Lumsden—on the west shore of Loch Lomond, in the early morning, when the well-remembered notes were heard, as a bird in flight passed overhead, flying from east to west. I vainly tried to catch sight of it, but interlacing branches of high beech-trees intercepted my vision. I heard it continue to call as it flew onwards for some time.

On the second occasion I was accompanied by Mr. Eagle Clarke and Mr. John Cordeaux, and we heard what Cordeaux first recognised, and I afterwards was convinced, was the distant but loud laugh of the bird, so like to my mind the uncanny shrieking laughter of some insane child. I felt convinced in my own mind, but one of our party, with characteristic caution, afterwards placed it amongst the "evidence of things not seen." For my part, I am inclined to think that one's education of many previous experiences warrants me in a strict adhesion to Mr. Cordeaux's prompt recognition and my own subsequent acknowledgment of that. I think I might as easily mistake the "clarion crow of a Midden Cock"—unless admirably imitated by some whistling boy—for what it was not. But to show that mistakes may occur in the best regulated minds, I will frankly admit that once I was suddenly awakened by a cuckoo clock *striking* "one," and it was not until later in the day that I realised that it could scarcely be a Cuckoo—and a March Cuckoo too! It was breakfast-time, when the "beast" *struck nine*, crying nine times in succession, which I cannot recollect having heard any other Cuckoo do!

I am not, however, forgetting the early statement by Yarrell, who spoke of the Green Woodpecker as "well known in the wooded districts of England and Scotland" (*British Birds*, 1st edition, vol. ii.

p. 140), and as "found over the greater portion of—if not all—the above-mentioned districts of both South and North Britain." Whence Yarrell obtained this information does not clearly appear.

Mr. W. Evans had some further correspondence regarding the specimen in the Perth Museum, of which he has kindly forwarded a copy to me. In a letter from Mr. D. Dewar to him of date 23rd November 1904, Mr. Dewar adheres to his record of the bird which passed into the Museum at Perth, and I see no reason to doubt the accuracy of it. Mr. D. Dewar at the same time mentions that another had been seen in Finlarig Wood three years previously, he says, "in the same month," *i.e.* September. (But in another letter he corrects that date *decidedly*, to the original date of 2nd May 1902, and simply accounts for it as a very natural slip of memory or misassociation of ideas.) I cannot at present see any good cause to doubt the accuracy of his original statement, notwithstanding this slight variation.

Besides the above specimen, there are two others in the Perth Museum which bear the following legends on their labels: "Male and female, Stenton Woods, near Dunkeld, summer of 1872." I have not received any further authentication of these two examples.

In May 1905, I saw Mr. D. Dewar in his own house at Killin, and after some general conversation, or in the course of it, I satisfied myself quite thoroughly of the correctness of his original statements as to the one he obtained himself. I may mention that Mr. Dewar does possess a few foreign birds, *i.e.* foreign to the local collections he had formed, but he was perfectly clear as to the bird in question.

I have the following from Mr. W. Berwick, Pathcondie, Monimail, Fife: "An irregular visitor. In August 1887 one was shot at Fiddinch, near St. Andrews. In March 1888 two were shot at Cambo, two at Gilston, and one at St. Fort Woods. Mr. W. Evans had not heard of these, nor of any in Fife. I have instituted further inquiries, and these records are repeated, but I have not been able to trace the present possessors of these specimens, if, as is likely, they were preserved.

## Iÿnx torquilla, *L.* Wryneck.

Occasional visitant in autumn. Also more rarely in May (see below).[1]

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[1] *Obs.*—I recorded a Wryneck obtained on the Isle of May, 12th September 1885, which was accompanied by another of its own species. The wind was recorded as west-south-west, and nearly a gale, and had been westerly for two days previously. Unfortunately the one obtained wanted the tail. But Mr. Evans on a subsequent

Mr. Marshall, however, found one upon the railway embankment near Stanley, and that one was deposited in the Perth Museum, and is there now. This one was found on the 6th September 1879. Horn quoted the account, and then Col. Drummond Hay verified the facts, included it (see *Scot. Nat.*), and secured it for the Perth Museum.

Dr. Dewar enters it as an "occasional visitant," and one is given as having been got on May 17, 1896 (see "Movements of Birds," *Annals Scot. Nat. Hist.*, 1897, p. 146).

Col. Drummond Hay relates that he had long been under the conviction that the Wryneck was in the habit of frequenting the old trees at Ballathy, near Stanley, as he had repeatedly heard its "unmistakable *tee-tee-tee*" proceeding from the boles of some of the old standard oak-trees in the recently cut coppice woods near the bank of the river; and he adds: "If memory serves me right, I have heard the same call-note in the Faskally Woods in Atholl." Col. Campbell states that Col. Drummond Hay had often told him (Col. Campbell) the same.[1]

Mr. W. Berwick informs me that the Wryneck is an occasional visitor to the north of Fife, and that one was shot in Gilston Woods.

## Family **ALCEDINIDÆ.**

### Alcedo ispida, *L.* Kingfisher.

Resident. Common. Breeds.

The true Kingfisher is meant in the old *Statistical Account* of Monzie parish (vol. xv. p. 244). The author shows this, as he includes the Water-Crow, "Cinclus," and adds, "at times the Kingfisher."

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visit to the island actually picked up some of these feathers, which were afterwards restored to the recorded specimen. Another Wryneck was obtained at North Unst lighthouse on the 9th September of that same year (see Migration Schedules for 1885). I think these notes are of sufficient interest as side-lights to be mentioned in this place. As I write (Dec. 28, 1905) quite a number are placed on record as occurring in Scotland (see *Annals Scot. Nat. Hist.*, Jan. 1906).

Mr. Marshall possesses in his local collection one which however came from Shetland; and I mention the fact here because Mr. Marshall's collection is for the most part local, and he has given me full particulars of all his specimens, so that I hope no confusion may arise at later dates as to the few specimens he has which have been brought from a distance.

[1] I would have been inclined to describe as unmistakable the "falsetto Kestrel-like cry" of the Wryneck.

Don, I believe, correctly included it as long ago as 1813 as an inhabitant of the eastern districts—"a native; and occurring at Glamis and Newmill."

"Thirty or forty years ago," says Col. Drummond Hay, "the Kingfisher was a constant resident on the Almond, and much commoner generally." Since that time it seems to have become rarer for a while. "But now again," Col. Drummond Hay continues in 1880, "gradually on the increase. It had actually disappeared for a time at many of its former haunts." By 1903, I have very decided evidences of its again being on the increase both here and in the west, and a distinct expansion westwards into ARGYLL, even finding its way as far as the isles, as, for instance, I have a record of a Kingfisher in Islay and another in Mull in 1903 and 1904.

In the north-east Dr. Howden reports that the Kingfisher is frequently seen on the North and South Esks (communicated to Dr. Drummond Hay).

It has been also distinctly stated to have been far more abundant formerly on the Tay about Aberfeldy and Kenmore, but became much scarcer by 1879. In 1878 a nest was found a little above Perth by Mr. P. D. Malloch. (*Obs.*—They were unusually abundant in central Scotland in the autumn.)

In Forfar Mr. Milne notes it as of sufficient importance to enter a specimen seen flying up and down the stream at Auchenblae for two or three days in the spring.

In Fife it is given as abundant. Mr. George Bruce gives a very interesting account of the life-history of this bird, which with the accounts of a few other species of birds goes a long way to redeem other faults and inaccuracies.

One of the last I have a note of killed in Fife was shot at Tayport, on 29th October 1904, and under the Protection of the Birds Acts, the "young man," who obtained it in a garden there, was fined by the Sheriff half a crown, and the specimen went to the St. Andrews Museum (*Annals Scot. Nat. Hist.*, Jan. 1905).

During my survey of TAY in 1905 I met with plenty of evidence, from the accounts of others, of a *decided increase*, especially in the south-west of the area; Mr. Frost[1] informing me of as many as four having been seen together not far from Crieff this season. Also, Mr. D. Dewar thinks there must be more now, whereas formerly he only got one at Remony. They appear to be advancing from the south in a fairly distinct "wave." But they seem to have a preference for a westerly trend in their dispersal.

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[1] Mr. Frost, Ardvreck, Crieff Academy, whose small but select collection of stuffed birds I inspected in May 1905.

"Two summers ago," says the Rev. Mr. M'Connochie, "we had two pairs of Kingfishers on two neighbouring streams, but this year they have not reappeared. One pair nested for several years near the mill here, and others have been seen, but are too often shot."

It is reckoned rare in the north and east of Fife, but Mr. W. Berwick has met with it on the banks of the Kenley Burn and also on the Eden and Orr.

### Family **CORACIIDÆ.**

**Coracias garrulus, *L.* Roller.**

Rare. Occasional visitant in autumn. Solitary.

Col. Drummond Hay places on record two older occurrences—one at Megginch, Carse of Gowrie, in 1823 or 1824, and one at Dunkeld in 1882 (*Proc. East of Scotland Scientific Societies*, 1886, p. 34). Col. Drummond Hay also speaks of having seen one many years previously to 1874, also at Megginch, and it was called by the people "The German Parrot," and it remained for some time in the neighbourhood. This may or may not refer to the one mentioned above. Mr. Robert Gray notes the occurrence of one at Dunkeld (*Birds of the West of Scotland*, p. 202).

Next comes one at Ballinluig, obtained on 13th October 1903, as first recorded in the *Field* (17th Oct. 1903, vol. cxi. p. 676).[1]

This Ballinluig specimen was shot by Lieut. B. C. A. Stewart, but I do not know its destination.

### Family **MEROPIDÆ.**

**[Merops apiaster, *L.* Common Bee-eater.**

Rare, and very occasional visitant.

One is entered in the Montrose Museum list as obtained at Laurieston, but there are no other notes relating to it. Mr. R. Gray (*Birds of the West of Scotland*, p. 203) claims to have "seen specimens of this bird which had been killed in Forfarshire and Aberdeenshire," and for the latter county gives data, but none for Forfarshire.

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[1] I give this particularly, because I find the record very indefinitely quoted later in our own *Annals* for October 1904 (p. 210), which makes it difficult to be sure at first glance whether the year of the capture was 1902 or 1903, the heading of the page giving 1903, but the title of the article erroneously giving 1902, while the date of issue of the number was October 1904. In this case, no doubt, a mere technical overlook in revising proof, but none the less puzzling, and necessitating reference to the cumbrous file of the newspaper. I think when quoting newspapers every facility should be given in similar cases for direct reference to the original leading record, and so avoid confusion. All scientific records should give the dates of the occurrences in full.

By 1904 Dr. Dewar marks it simply "Very rare visitor" in Forfarshire. (*I do like Dr. Dewar's laconic judgments. These are worth a lot of* "THIS AND THAT.")

In absence of definity, I must exercise my brackets.]

## Family **UPUPIDÆ.**

### Upupa epops, *L.* Hoopoe.

"Purely accidental occurrence"—so Col. Drummond Hay designates its value in our faunal list. Personally, I do not like the use of the word "accidental"—never did. I prefer simply, "Rare occasional visitant."

Col. Drummond Hay gives several instances of its appearances in the Carse of Gowrie. One specimen is in the possession of Sir Thomas Moncreiffe, which was shot at Craigie.

Col. Drummond Hay, when writing to me on 3rd November 1885, mentions that his friend Captain Stansfield, at Duninald, in Forfarshire, showed him a Hoopoe which he had shot in the park there "three years ago," viz. in April 1882. This locality is not far removed from Montrose, and is described as a likely place for the first "catching up" of the land by over-sea migrants.[1]

A bird of the year—now in the Perth Museum—was got by Mr. Harry Wedderburn, of Birkhill, on 8th October 1892 (Col. Hay Drummond in *Proc. Nat. Hist. Soc. Perth.*, vol. i. p. vii., 1892-3).

Dr. Dewar simply annotates his list thus: "Very rare visitor in the east."

Mr. W. Berwick instances one obtained at Elie House on 8th May 1875.

## Family **CUCULIDÆ.**

### Cuculus canorus, *L.* Cuckoo.

Old Gaelic name, *Cuach.*[2]

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[1] As already indicated (Introduction), I am not "sib" to the belief that the direction in which the Forfar coast lies is a good one for "catching up" any great bulk of migrants—at least as compared with further north and further south—as I believe that the trend of the flights *here* is mainly from directions north or north-east, as Mr. Eagle Clarke points out in his *Digests of Migration Schedules.*

[2] *Glas shiontachd na Cuach,* literally "the heavy storm of the Cuckoo" (old *Statistical Account,* vol. xii. p. 450, parish of Kirkcudbright). The old *Statistical*

The old *Statistical Account* has notices of it in the parishes already often quoted—Moulin, Weem, Monzie, Killin.

Col. Drummond Hay says that there was a decided decrease in numbers of this familiar bird in the Carse of Gowrie and in the lower Strathearn valley, and he associated this decrease with "that abominable invention the pole-trap"; and he further relates that "an admission had been made of one hundred Cuckoos having been taken in a single season in one neighbourhood alone by this means!" The Colonel also relates an amusing story how an inquisitive tourist got trapped in one of those pole-traps!

Horn records Cuckoos seen at Killiechassie as late as 5th October 1877 (*in lit.* to me, and in his article before quoted); and I was able in 1880 to verify the accuracy of his previous note, by seeing on the 7th or 8th October *one Cuckoo certain*, when shooting the covers above the house.

It was reported abundant on Tay generally by Mr. W. Evans in 1887.

And common in the north-east by Mr. Milne in 1896.

But generally it is reported as less abundant in the lower-lying lands than in the middle and upper valleys in 1904.

Evidence of the late stay of the Cuckoo may be found also given by Mr. J. W. Payne (*Zool.*, 1903, pp. 351-2; and *Zool. Record*, 1903, p. 25).

Again, in 1905, in all the valleys of the south-west of TAY I met with Cuckoos in unusual abundance, seeing as many as four at the same time flying over Tyndrum Station, and hearing one of these birds distinctly utter the treble note, which I cannot remember ever hearing before so early in the year, viz. the 20th May. In the north-west, however, I did not find Cuckoos so much in evidence, *i.e.* after the cold weather again set in—and this recurrence of cold east winds was quite likely sufficient to account for the fact.

It may be possible that some of this abnormal increase of Cuckoos is due to a more restricted use of the pole-trap; but I cannot put much faith in that as the principal reason, and I am more inclined to account for such by some seasonal peculiarity, acting probably in the same way as regards abnormal increases of certain other species I have already referred to.

*Account* says: "It seldom appears before the beginning of May; and often its arrival is announced by cold blasts from the north, and showers of snow, which are considered as auspicious omens of the approaching summer. This temporary vigour of the weather is called as above by the people." (This is very general in Scotland; I know of it in many places from Kirkcudbright northwards as far as Banff.)

The Cuckoo does not appear to be very abundant in ordinary seasons in the north-east of Fife, and Mr. W. Berwick designates it as "seen occasionally. Heard this year (1905) on the first of May."

By August 14, 1905, Cuckoos seem mostly to have left the upper Tay and Killin districts, where I had found them so unusually abundant in May. Mr. W. Evans, during the time he resided at Killin in that month, only met with one young Cuckoo at the foot of Glen Lochay on the 14th. (Contrast this with the notes given above of the late stay in successive seasons near Aberfeldy, as witnessed by Mr. W. Horn (1877) and myself in 1880.)

## Order **STRIGES.**

### Family **STRIGIDÆ.**

There are no columns for Owls in the lists of vermin killed on Perthshire estates which have been returned to me. And, at the same time, there are no returns of Rats killed! We have always known that Perthshire is an enlightened county, however far short some others are of any such praise!

**Strix flammea**, *L.* **Barn-Owl.**[1]

Resident. Fairly common. Breeds.

Don spoke of it as "common" at the time he wrote.

Mr. Eedle saw one at Rannoch in 1870 (*Zool.*, 1871, p. 2656), but it is not universally distributed even now in 1904; or perhaps I ought rather to say, it is, if general, not abundant, and rather confined to certain districts.

By 1880 Col. Drummond Hay considered it "almost extirpated by pole-traps."

In 1879 old haunts given were, amongst others, Castle Menzies in Rannoch, ruins of the old Cathedral at Dunkeld, in Mid-Tay districts, and here and there in the lower grounds. But considered rarer in the north-east by 1900, and Dr. Dewar marks it so: "Resident, not common in the east." Mr. Milne makes it out "Resident, but not common; breeds in the cliffs and rocks of St. Cyrus and other parts of the coast."

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[1] This poor bird has been rechristened—as separable from the type of Linnæus—as *Aluco flammea Kirchoffi.* Some bewildered field-naturalist may be expected to be on the hunt for some red-handkerchiefed bird in foreign parts, whereas really the deviation was found in Wales!

By 1899 it was stated to have been "more common formerly in Kincardineshire than it is of late years. Indeed, it may almost prove to be extinct."

**Asio otus** (*L.*). **Long-eared Owl.**

Resident. Common. Breeds.

In the north-east Mr. J. Milne's list includes it as resident, but by no means common, and adds: "I have had the eggs."

In the north-west the keeper at Killiechassie, near Aberfeldy, who had just killed one (April 1901), remarked to the late Rev. H. A. Macpherson that this bird fed upon young rabbits, and that *some individuals* are also fond of birds, and will carry off tiny game-birds! To this I can only add my belief that the remark is true, *if the Owls get the chance*, but a good keeper should be quite able to guard against this at night as regards Pheasants; and as for wild game, there are not so very many exposed to these attacks at night if the parent hen does her duty! I do not say that the Killiechassie keeper is a lazy man, but I am well aware that the above statement is often put in by those who are—*i.e.* blame anything and everything except their own inefficiency. If *some* Owls are encouraged to seek their food, say amongst the young Pheasants, it may well become a bad practice and become confirmed; but if they have plenty of more natural supplies —lots, for instance, of mice, and voles, and young rats in the night-time—they will be well satisfied with that. Many gamekeepers consider it *beneath their position* to be a ratcatcher! In such cases they may be said to be *getting too big for their boots*.

By 1888 the Long-eared Owl occurred as far up country as Loch Ericht Lodge, as evidenced by one sent to M'Leay thence, and as I have been informed of late; but I cannot find that I have any notes of its presence there greatly before that time. Also, a few are found about Rannoch.

It was found also in the south-west at Lochearnhead by Mr. Godfrey in 1904. It occurs at many intermediate localities, if not indeed generally over all, and has often been met with by myself. Instances are really too frequent to require detail, unless at the more extreme points.

A statement that a large flight of these birds appeared near Scotscraig could not be taken seriously. The probability is that some misunderstanding had taken place, and that the notes really referred to Sand-Grouse. Mr. W. Berry has kindly investigated this at my request, and the outcome points in the above direction. Mr. John Fowlis told Mr. Berry that he never heard of seventy owls having been seen in a flock anywhere on Admiral Maitland Dougall's grounds on Tents Muir; besides, the number amounts to the same of the largest flight of Pallas's Sand-Grouse, which were known to be haunting that reach of sand-hills at that time.

### Asio accipitrinus (*Pall.*). Short-eared Owl.

Resident. Uncommon as a breeding species; but said to breed abundantly, or to have done so, by Mr. Booth in 1865-6, or 1867.

Reported as an autumn migrant only in the north-east by Dr. Dewar; but Mr. J. Milne believed for a long period of time that they bred in rabbit-holes, several Owls' nests having been found in such situations in Monboddo Woods in different seasons. This was first communicated to Col. Drummond Hay, who appears to have accepted the statement, no doubt trusting to Mr. Milne's usually correct knowledge and care. Col. Drummond Hay said on that occasion: "This is the first authentic instance of its actually breeding in the district." I was, however, very dubious, and made further careful inquiries. Mr. Milne, soon after Col. Drummond Hay's death, in a letter to me, makes it appear that the whole evidence was built upon the statement of a keeper at Monboddo, and the appearance of a clutch of eggs seen by an "English naturalist." One nest, however, appears to bear some slightly better authenticity. Mr. Nelson, of Redcar, told me "they were found on a hillside above Monboddo in a nest on the ground made in rough grass and heather." Mr. Eagle Clarke also saw these eggs (Mr. Nelson *in lit.*, 17th April 1904). Mr. Nelson was there in 1901, and he was told that they bred on Heisha Moors.

Before Mr. Milne resiled from previous accounts by him, he told me that "a party brought in four eggs of a Short-eared Owl." These, he said, "were got in a rabbit's hole about six inches from the entrance." But, Mr. Milne adds, "this is the first instance I have known of their nesting here for the last thirty years. I don't think," he continues, "there can be any doubt about this, for the bird was sitting close on hard-set eggs, and the party treading on the mouth of the hole flushed it, and he had a close view of the bird."

But I was still sceptical. However, in a later letter, upon my pressing, Mr. Milne resiled from all these records of Short-eared Owls nesting in rabbit-holes in the north-east, and I am sure he is now of the same opinion as myself in the matter (*in lit.*, 21st April 1904).

Besides, the actual date of these eggs, which were hard-set—or the parent bird sitting hard?—is a quite surprising and significant departure from the usual habit of the Short-eared Owl in other parts of Scotland, as it is well known that these birds breed at a much later date, and rarely begin to lay till the month of June.

I therefore cannot accept it as fact with any degree of comfort or satisfaction to myself.

But the species need not on this account alone be bracketed, as it is known as an autumn migrant. And besides, Mr. Booth relates in his *Rough Notes* that they are particularly numerous in the north-west of Perthshire, or at least that they were so when he was in that district. He says: "I have come across their nests *on many occasions* on the grouse-moors." Though this was new to me, and is so still, I throw no doubt upon his accuracy, because we know how curious and sporadic are the visits and breeding of this Owl in other parts—as, for instance, during the year of the last great Vole-plague! It is quite possible that there was a local abundance of Voles to the north of Glen Lyon in the seasons when Mr. Booth was residing there. Turning to other materials in my possession, I find, however, that Mr. D. Dewar, who had been some forty years gamekeeper at Remony, on the south side of Loch Tay, and also near Killin, assured the late Rev. H. A. Macpherson that he had "never heard of the Short-eared Owl breeding in Perthshire, but had killed a few when he lived near Killin" (H. A. Macpherson's MS.).

In 1813 Don admitted it as "on the mountains of Angus." Quite possibly Don was correct in his statement at the time he wrote.

In the north-east Dr. Dewar says of it also: "Occasional. Probably breeds in the north-east." But he is not speaking of his own district here; and of the fact so stated, as already said, I am still full of doubt.

Other notes give a general consensus of opinion that its value there is only that of an autumn migrant.

Horn, in 1879, spoke of it as "very common in the neighbourhood of Dunkeld," and he mentions the fact of Mr. Dewar having killed some near Killin; but I do not find it included in Mr. Dewar's lists in my possession, nor would I expect to hear of its abundance in wooded areas, which is so opposed to all we know of its usual habits in other parts where it is known to nest. Indeed, I cannot help thinking that the two species, this and the last-mentioned, have in most cases been transposed, as I have known them to have been in other places and under other circumstances.

Booth's record, I think, therefore must stand alone, unless we accept that already given by Mr. Nelson (?). As for any identification from eggs alone, I have never much believed in that, after some very constant years of experience in the collecting field; though I know many people do believe in identifications so obtained.

In Mr. Malloch's registers I find a good many entries, but there is not one which could be put down to a summer specimen, unless one which is dated 6th August 1894, and belongs to J. G. Millais, may be so considered. The rest date between 2nd March and end of September in different years, omitting such as can be truly given as summer occurrences.

The following notes from the late Rev. H. A. Macpherson's MS. are of interest. Of an Owl of this species obtained in North Uist he relates that he kept it in confinement, and sums up the quantities of food it consumed thus: "This bird requires 5 mice per diem. Ergo—a brood of 5 would consume some 175 weekly, or 1050 in six weeks, apart from the food of the adults." Now we know that as many as eight eggs have not uncommonly been found in the nests of this species during the time of the great Vole-plague, and we know also that during Lemming years in Norway, as many as eight eggs are not uncommon in nests of the great Snowy Owl; and one recent account I have makes mention of no less than nine eggs in one nest of the latter species. This was during the autumn or late summer of 1903, which was a Lemming year in Norway. No wonder the present species was so abundant in the Border counties of Scotland during the time of the Vole-plague! Yet how rapidly they again almost disappeared when the Voles died off! The above young bird was taken from the same nest whence I obtained two eggs in that same year.

I have the authority of the late Mr. Allan Briggs, of St. Andrews, verified by his friend Mr. J. Honey, that they both remembered this species of Owl nesting, "many years ago," in a young plantation at Kinshaldy, Tents Muir. The note was in journals kept by Mr. Briggs, the use of which, however, I am not in a position to benefit by, though I was allowed to see them for a short time after his death. Mr. Berwick is also aware of this fact, and adds that these birds also used to nest at Priorsmuir.

### Syrnium aluco (*L.*). Tawny Owl.

Resident. Common. Breeds.

Very common in the woods of the north-east, and generally throughout the counties of Forfar and Kincardine (J. M. and Dr. Dewar).

In the north-west of our area the Tawny Owl is the commonest of the Owls in all suitable localities.

Generally, Col. Drummond Hay designated its value as "still common, but persecuted"; less persecuted now, however, I fondly hope, except where ignorance or carelessness is rampant.

In the late Rev. H. A. Macpherson's MS. I find that as late as January 1900 he saw twenty-two Tawny Owls hung up by the legs —all adult birds, and principally of the ferruginous type—on a large hoarding at Logierait, of apparently recent construction. And in the same season many were seen in a Vermin Museum at Faskally, January 1900. (It would not be difficult to find a word which rhymed with Faskally—with all apologies to those concerned !)

But now, D. Dewar, forty years gamekeeper on the Breadalbane estates, at Remony, near Killin, assured the late Rev. H. A. Macpherson that Tawny Owls killed many young rabbits and hares (May 23, 1901), and he had trapped many on the open moors with rabbit-bait. He at once jumps to the conclusion that this species and the Long-eared Owl are destructive, but he admits that they both kill large numbers of mice and voles. And a forester gravely asserts, and reiterated the statement, that "the Owls took *such a lot of eggs!*" I wish simply to say that trapping Owls with rabbit-bait is not necessarily a proof that Owls kill many young rabbits, though I would be sorry to give myself away by asserting that certain "*educated* Owls" never do !

The moral of this is: "Don't educate your Owls."

It is somewhat curious to find that upon the next shooting to Logierait, Col. Sanderman was endeavouring to introduce Tawny Owls in that same season, and the Rev. H. A. Macpherson saw six young ones recently imported from England.

As early as 1813 Don spoke of Tawny Owls breeding in the woods of Balnamoon, in Forfarshire.

It is unnecessary to catalogue its present distribution in our area, and it is only required that education should first be applied to those who lack it, by the powers that be, and that keepers look after their duties better than to allow Tawny Owls to get "educated up to" a fondness for young things, except rats!

I am perfectly well aware that *certain Tawny Owls* may become vermin, if facilities are given to them, and other food be at the time scarce. I know well the habit which at times is engendered of thumping the Pheasant coops and then pouncing upon a young Pheasant which may come out. That Owl should be shot or trapped, but whose fault is it if such a spirit is begotten? In the same way I have always been under the belief that man-eating tigers, rogue elephants, and other *old* beasts are poisonous vermin, but that is no reason why all the tribe should be condemned. Similarly, I may instance White-tailed Eagles and "vermin" generally. Are all to suffer because there is "one bad boy in the school"? Well, this appears to be the only way adopted in A.D. 1904, to enable our vermin-killers to bring it home to the true delinquents. The fiat is "SLAY," and perhaps amongst the hecatomb "you may have secured the culprit"!

From the above notes, notwithstanding their absence by name from the usual vermin lists, Owls are not immune from persecution in enlightened Perthshire. How is it none are returned in these lists? Perhaps—and let us hope so at least—it is not from ignorance on the part of owners of property or slackness of authority by them, but from wilful ignorance and bigoted disobedience. Much as I know and in many ways respect and admire the general qualities of our Scottish gamekeepers as a class, still there is no getting over the fact that in many places they hold to the old, old antagonism, "*to all things which live and move and have their being which wear claws!*"—even in some places, Nightjars—"*nasty floppin' things these be!*"

I grant there is proof that Tawny Owls do take a young hare at times—I have plenty accounts of their doing so, but I uphold that the good they do in keeping down *far worse* vermin, such as young rats and voles and mice—which, often, *keepers consider as beneath their notice or not within their province to kill*—far and away makes up for any other delinquencies. But many things may become too numerous, and so also may the best-behaved of our raptorial birds. Consequently their natural food may, and does, become scarcer in certain seasons, and then they may—*do*—occasion some little trouble to the keepers. At other times they are often the keepers' best friends, especially if any keeper thinks it is not his duty to kill rats!

**Nyctea scandiaca** (*L.*). **Snowy Owl.**

Rare. Very occasional visitant.

The only authentic occurrence in the north-east that I have note of, is one which was captured off the coast near Montrose, *i.e.* if that constitute a record. It was taken alive on board a fishing smack, and was brought alive in a seaman's chest to Mr. Small, of Edinburgh, and was seen by me in the flesh after Mr. Small had killed it. I would have preferred it in life, but I was too late, and so did the next best thing—bought it there and then. (Full particulars will be found in the *Zool.* for 1868, p. 1058.)

One was killed at Mornish Hill, near Loch Tay, by Mr. D. Dewar, but I do not find this mentioned in his lists.

*Obs.*—The tales about Snowy Owls nesting in the cliffs about Arbroath and Aberdeenshire are scarcely worthy of repetition; but as general knowledge does not take us back to the glacial epochs, I think it as well just to mention that such statements have been made on several occasions.[1]

One obtained at Glenbervie is included as belonging to DEE, which is still preserved in Glenbervie House.

**Bubo ignavus**, *Forst.* **Eagle-Owl.**

Of doubtful occurrence as a wild bird.

In 1777 Pennant refers to its occurring in Fife, "probably a migrant from Norway."

In 1871 my late friend E. R. Alston obtained a young Eagle-Owl in Norway, taken from the nest, and brought it over alive; and in the division of the spoil of our collecting trip the bird fell to me. I at once had a palace built for *him*, and he got treatment fit for a king for years. He had been christened "St. Olaf." But much to my astonishment—because I was not aware of the differences of plumage between a king and a queen of Owls—what did *she* do but go and *lay eggs*! Thenceforth she received the name "Olive," but it came to be shortened later to "Ole,"—though we were aware that "Ole" is masculine! Then Mr. Henry Gurney most kindly presented me with a companion bird, but *he* (?) died and left Ole still monarchess of all she surveyed! Nor did there appear to have been any tangible result of the royal marriage (?). Ole still laid eggs, but, alas! "*they didna come oot.*" Finally, Ole having passed through all stages of plumage, I gave him—her, I beg her pardon—to my friend Mr. J. D. Paterson, of Dalnaglar, Glen Shee, as company to other scions of the house which he already possessed in durance there. The last I heard of her was she was still living about the year 1901, and since then I have heard that her reign has ceased by death. She is still embalmed at Dalnaglar (1905).

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[1] In connection with the visits paid by birds of north European origin which prey upon smaller birds or mammals, I may mention that 1903 was a Lemming year in Scandinavia—or at least in some portions of Norway, as I am assured by my friend the Rev. Francis C. R. Jourdain (*in lit.*, 3rd November 1904); and one clutch of eggs was taken in Novaya Zemlia of nine eggs. (See under Short-eared Owl, and again under Rough-legged Buzzard, *infra.*)

In 1873 Mr. Robert Gray records the occurrence of one at Pitlochry, obtained on 17th January 1873 (recorded, 22nd February 1873, in *Proc. Nat. Hist. Soc. Glas.*, vol. ii. p. 214), but, as has been shown, this was probably an escaped bird (see vol. iii. p. 359). In fact, one had escaped shortly before from Fountains Abbey, and was doubtless the same bird.

### Scops giu (*Scop.*). Scops-eared Owl.

Rare. Very occasional visitant.

Col. Drummond Hay, writing to me on 5th March—by internal evidence, 1885—told me of a male and a female Scops Owl having been shot at Scone in May 1864. This was after fresh inquiries, and he added: "I have since noted it down." These two specimens are in the Museum.

### [Athene noctua (*Retz*). Little Owl.

Laidlaw records one in his *Movements of Birds.* One is there reported as obtained in Kincardineshire on 1st February (*Annals Scot. Nat. Hist.*, 1903, p. 150). I have not traced the destination of this specimen.

Also the late Prof. Heddle, of St. Andrews, related at considerable length his having seen one of this or some other small species of Owl at St. Andrews late one night in the old palace gardens.]

## Family **ACCIPITRES.**

### Circus æruginosus (*L.*). Marsh-Harrier.

Rare. Possibly commoner at one time, but this is doubtful.

Col. Drummond Hay saw one "in the flesh" in Mr. Malloch's hands, which had been shot in the district in 1880, but no precise date was given.

The hold that this species has upon a claim to the TAY fauna rests on the above and on the following evidence.

There is one in the collection of Mr. Marshall, Stanley, from Logiealmond, obtained by Mr. Alexander Stewart on 7th February 1880, and is probably the one referred to by Col. Drummond Hay.

Dr. Dewar quotes one in the Montrose Museum with the date 1850, but I have been unable to get any further particulars.

As long ago as the time of Don's writings he included it by the name of "Moor-Buzzard," inhabiting heaths, etc., and says: "I have seen this species on the hills of Turm and Pitcandley," but Don makes no mention of the Hen-Harrier.

### Circus cyaneus (*L.*). Hen-Harrier.

Old Gaelic name, *An t' eun fionn*, *i.e.* The White Bird (old *Statistical Account*, xvii. p. 248).

Exceedingly rare, if not quite extinct. Certainly no longer breeds, and there is little evidence of its having bred for a long series of years. It used to be familiarly known by the local name of "Blue-sleeves,"—a name, however, also sometimes erroneously bestowed upon the Peregrine Falcon.

Since 1832, or thereby—about the time, indeed, that Macgillivray wrote—the Hen-Harrier had become quite a rarity in the Lowlands; and long before 1880—which I quote as a landmark, because Col. Drummond Hay brought the ornithology of TAY down to that time—it may be considered to have been extinct, certainly as a breeding species. Col. Drummond Hay had often watched these birds quartering the ground "like a pair of thoroughbred pointers," quite low amongst the carse-lands.

Even by 1845 the *New Statistical Account* states it to be rare in Killin parish.

In the east and north-east districts there seems no reasonable doubt but that it was at one time common, or even plentiful, and this within the memory of people still living (1904). Now it is practically extinct. Mr. Milne's list has it "rare visitor," and he instances "one shot in Drumtochty Glen, and now in the collection in the Castle." I find that Mr. Small received "one from Forfar" on 6th November 1869 (Registers), and this is probably the one referred to above.

In Fife, in 1840, a male and a female were seen by Mr. James Keddie "not uncommonly about Strathtyrum, Magus Moor, and

Winthank, which properties belonged at that time to James Wemyss, Esq., of Winthank—my friend Col. Feilden's grandfather."

The value in the fauna of the north and north-east of Fife at the present time may safely be described, as Mr. W. Berwick describes it: "Used to breed in Fife, but now very rare."

### Circus cineraceus (*Mont.*). **Montagu's Harrier.**

Rare.

One is inserted, upon Mr. Malloch's authority, under date of 10th September 1894 (Register), with the ownership as "Mackay," and was returned to him 14th January 1897.

"On the 10th May 1885 a fine male was shot near Mayfield, and on 30th November following a female was procured at Seaton Den. Both these are in my collection," as Dr. F. T. Dewar tells me in his list, and as mentioned in his *Ornithology of Arbroath*. His note in the list only gives the fact thus: "Male and female shot near Arbroath." I saw these two specimens in his collection in June 1905.

### Buteo vulgaris, *Leach*. **Common Buzzard.**

Resident. Common. Breeds.

Owing to frequent confusion in the application of the names "Gled" or "Glede" to Buzzard and Kite, applied in the old *Statistical Account*, I often find it difficult, and sometimes impossible, to locate records of these two species. Thus the old *Statistical Account* sometimes speaks of "two species of Glede or Kite." However, this remark does not apply strictly to Tay so much as to more western districts, and the confusion does not tend to mix matters so much in our present area as in some others. But what is worse than these older errors of synonymy, they are still rampant in the present day, even among otherwise educated people, due to the error still holding among shepherds and many keepers; and this makes it often extremely difficult, especially for strangers to our Highlands and Highlanders, to identify what is meant. No descriptions are of use generally, as the shepherd may well not distinguish between a tail "like a saumon's" and a tail "like a swallow's." "*A tail like a saumon's*" is far more like a salmon's and a Buzzard's than the tail of a Kite; and there is again an element of confusion speaking of "Swallows" and of Martens. Indeed, some of our older ornithologists are perhaps more to blame for confusions than the people who follow these names. I have come across many instances of this confusion between Kites and Buzzards by these names, and some huge blunders in consequence thereof.

In 1840 Mr. James Keddie told Col. Feilden that Buzzards nested in *late whins* at Priorsmuir, Stravithie, about 3½ miles from St. Andrews, and this as late as that same season (and see Hen-Harrier, which Keddie also knew well).

Until about 1832, or thereby, Buzzards were abundant within the grounds at Dunkeld (Col. Drummond Hay in *Scot. Nat.*, 1879-80, p. 58).

In September 1894 my cousin (now Dr. Adrian Forrester, Chatham) saw eight Buzzards hanging up in a keeper's museum in Glen Lochay, on the shootings belonging to or rented by Mr. Wegg at the upper end of Loch Tay. I know, however, that these birds are really abundant, and in no danger at present of becoming exterminated, but it would be better if people realised that it would be sufficient just to keep their numbers in check, and not to allow promiscuous killing down of birds which principally feed on "*very small deer*" indeed! I know they are still in Glen Artney, and all along in suitable cliffs and burnsides between that and the western boundaries of our area and beyond, as well as indeed pretty generally distributed, and indeed increasing of late years, all over the West Highlands.

In the Arbroath district they are, however, quite rare. Dr. Dewar instances one captured after a struggle with a weasel (*Annals Scot. Nat. Hist.*, 1892, p. 200), and adds, "only one or two having been procured for many years." (*Obs.*—In this connection, battling with a weasel, see also our first volume of this series under Buzzard.)

In 1880 Small's "Registers" has it: "Too numerous to continue" (*i.e.* to record) (Jan. 9, 1882).[1]

Buzzards used to breed much lower down the valleys than they now do, but there are indications that they may resume old haunts so situated. I have myself known of a nest or two quite in the lowlands, both in Perthshire (Glen Artney) and in other counties to the south.

Two "Buzzards" are reported as having been seen on the moors above Auchenblae on August 15, and again on October 29, 1904, by Mr. Milne.

In 1905 I saw the remains of one hanging up, along with other vermin, on a keeper's hoarding in Glen Lochay, where these birds were still nesting at date of 1905.

The present value of this species in north and north-east Fife may be expressed, "A rare visitant (?); used to be common about Stravithie."

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[1] I am indebted to Mr. Peter Morrison—Mr. Small's successor—for a careful copy in MS. of rarer occurrences in the "Registers" during later years.

### Archibuteo lagopus (*Gmel.*). Rough-legged Buzzard.

Autumn and winter visitant. May almost be valued as regular, but varies in numbers, appearing in great quantities in some seasons, and staying, of late years, well into the spring months.

Mr. D. Dewar informed me (*in lit.*, 16th Dec. 1870), that "every winter for a long time back he had noticed that when a strong east wind had blown in November, and continued for a day or two, 'Eagles' appeared, and were either accompanied or followed by Rough-legged Buzzards coming from the same direction, and following an exactly similar course in their flight." In 1870 four White-tailed Eagles were accompanied by three Rough-legged Buzzards, flying up Loch Tay.

As a rule, Rough-legged Buzzards are seen more frequently near the east-coast line, but often fly far inland after arrival. Thus birds turn up at Balmain, Fasque, etc., whence specimens have been obtained as long ago as 1837, and some of which are stated to be in the Montrose Museum; and Macgillivray records one shot in Fife as long ago as December 1839.

About 1856 birds of this species were constantly trapped around Ballyouchan, and, during the migration season, were far more abundant than the Common Buzzard — as might naturally be expected by up-to-date students of migrational fly-lines.

Amongst other "rushes"—or what may be termed "Rough-legged Buzzard years"—was the season between autumn and spring of 1875-6. On that, and as on other occasions, they reached far across Scotland, and there appears to have been certainly two main streams of the migrants, as will be indicated further on.

Mr. James Lumsden has brought their history up to date of May 1876 (*Nat. Hist. Soc. Glas.*, vol. iii.). He told us that apparently the forerunner of the flight which followed was got at Castlecary (FORTH), and dated 22nd October 1875, and shortly after, four were sent into Edinburgh. The great flight swept across from the north-east of our present area to CLYDE; and numbers also appeared later in the season (February) in the island of Mull (ARGYLL). The front of the immigration extended down the whole east coast to Berwickshire, but there seemed to have been fewer observed in DEE—at least we are not specially informed as to the numbers seen in that area in that year. However, there seems scarcely any doubt that a considerable section of these immigrants passed down the great trough of the MORAY BASIN, and so found their way to the west, north of CLYDE.

Speaking a little more in detail of this flight, I find that Mr. Henderson, of Dundee, received nine birds in the flesh, all obtained in the neighbourhood of Dundee. He sent six of them—after preservation—to me, and I selected two. Four of them were got in one day. Many more were got or seen along the east coast of Forfar—as, for instance, at Couston, near Newtyle; and in Strathmore; also at Balthayock (Perth), Drumkelbo, and at Largo (FORTH), etc.; and many were procured, as I have already pointed out, down through the areas of Scotland, mostly to the south of the Grampians, though a smaller number were also got, or seen, at Mull and elsewhere to the north of the same range.

The next prominent "Rough-legged Buzzard year" was 1893. That was followed by one in 1903-4, as many returns show; and again they penetrated far into the interior.

In fact, the line of their main flight appears to be as follows: The greater number strike our coast about the northern confines of our present areas, and follow down the east coast, and when their numbers are heaviest in pronounced years of immigration, seek inland by the bases of the Grampians and along the wide strath of Strathmore. Thence this battalion seeking across again turns up in the Vale of Menteith, as for instance at Boquhan—a very favourite spot on all such visitations. Then the stream always appears to get south by the passes through the Fintry Hills to Duntreath and Campsie, and so on to CLYDE. A branch also, but a more restricted one, passes along the south side of the Ochils *viâ* Fife, the main flow going south after the East Neuk of Fife is reached; and I have seen individuals flying over this house and grounds (Dunipace) in FORTH.

But Dr. Dewar seems to reckon this bird as only "a rare visitor," from Montrose southwards by Arbroath (but see Henderson's information above); and their appearances to the north of Girdleness also seem to be of greater irregularity, so far as our recorded statistics tell us (see *Fauna of Dee*, by Mr. George Sim).

It suggested itself to my mind that there was probably intimate relationship between these great "Rough-legged Buzzard years" and the periodical migrations of the Lemming in Norway, and accordingly I consulted Herr Prof. R. Collett's paper on that animal, and also asked him to let me know further.

Now the year 1903 was reckoned a great Lemming year in Norway, as already stated *ante* (p. 177), under Snowy Owl, on the authority of Rev. Francis C. R. Jourdain. Herr Prof. Collett verifies the statement also, and tells me (*in lit.*, 13th Dec. 1904), "In the first part of the summer of 1903 they were tolerably numerous at Roroe and the Trondjem Fjëlds, and also in Finmark. In 1904 there was a Lemming year in Finmark from the spring till middle of June, when every one disappeared. In the southern fjëlds there were hardly any Lemmings that summer."[1]

Of the occurrences of the Rough-legged Buzzard close up to the DEE watershed, there is a "glac" or deep "scaur" or "sheugh" in Strathfinella Hill which faces north, and which was pointed out to me by Mr. Milne as the haunt of this species when on migration, and where specimens have been procured.

### Pernis apivorus (*L.*). Honey-Buzzard.

Rare visitant.

I have no evidence of the Honey-Buzzard nesting within this area.

Don merely includes it in his list without any remarks.

In 1866 Mr. P. Henderson, of Dundee, had one in the flesh which he dissected, and later on he told me the results, when I exhibited others sent by him in 1878. Two of these latter were shot at Mill Hill in Forfarshire, and at Balmuir respectively; one, a female, at the former locality, and another, a male, at the latter. These two were shot within three days of one another, viz. the female on the 10th, and the male on the 13th September 1878.

Mr. Henderson said that these were the first he had handled for fourteen years, and he added the information that the last one he had seen he had dissected, which was in 1866 (slight discrepancy here), and he found in its stomach the remains of eighteen legs of

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[1] For further information on such points refer to Collett's paper for other Lemming years, and place them in juxtaposition with the greatest "Rough-legged Buzzard years." Seebohm takes notice of Collett's remark that Snowy Owls do not always lay so many as ten eggs at a time. Naturally their doing so, or laying any unusual number, depends upon the supply of food. Thus in Lemming years, when the favourite food is most abundant, the birds are found to lay more eggs than they do in times of scarcity; and this also occurs with other species, as we have good evidence to show took place with the Short-eared Owl at the time of the Vole plague in our Border counties. The Snowy Owl did lay unusual numbers in 1871—the year after that in which E. R. Alston and I were in Norway, and when we captured many Lemmings; and these birds were recorded as breeding far further south than had been known before. The greatest number of eggs we got—taken for us by Olé J. Lysne—was eight in a nest, but we learned that ten was by no means uncommon. As stated above, the Rev. Francis C. R. Jourdain instances nine in a "clutch" in Novaya Zemlia. Alston and I witnessed the commencement of a Lemming year on the Fillé Fjëld in 1871. 1903-4 was another Lemming year.

Pheasant chicks and a corresponding number of their heads, as well as parts of the egg-shells (*Proc. Nat. Hist. Soc. Glas.*, vol. iv. p. 145). Mr. Henderson does not give a precise date for this 1866 specimen, but presumably it must have been a summering bird, and not an autumn visitant. For a fuller account I beg to refer my readers to the above-quoted earlier record.

It is quite possible the Honey-Buzzard may have bred in TAY or Strathmore, as we know from Macgillivray that it had bred in DEE on at least two occasions, and we know also that the autumn migrants of the species for the most part follow the east-coast line, and we also have the fact of its having nested in East Ross—as duly related in our MORAY Fauna (*loc. cit.*, p. 66).[1]

The latest record I find is that of one obtained in Forfarshire (*Annals Scot. Nat. Hist.*, 1903, p. 49).

### Aquila chrysaëtus (*L.*). Golden Eagle.

Old Gaelic name, *Iolair dubh*, *i.e.* "The Leader," or "He that showeth the way." *Dubh*, black.

Resident. Breeds. Abundant. Greatly on the increase of late.

Pennant tells us that the "Black Eagle, or Ring-tailed Eagles," were "a few years ago so numerous in Rannoch that the Commissioners of the forfeited estates offered a reward of 5s. each for every one that was destroyed. In a little time such numbers were brought in that the Honourable Board reduced the premium to 3s. 6d."

Going back to some early records, I find that there is abundance of evidence of the Golden Eagle in the first half of the nineteenth century. Thereafter they became much rarer, until about 1870 to 1880 I believed that I could very nearly count all the eyries then really occupied, and I came to the conclusion—whether rightly or wrongly—that one hundred breeding pairs of birds would fairly represent the population. This is, however, more likely to be under-estimated than over-estimated. It should be remembered, however, that about 1870 or thereby White-tailed Eagles were greatly more abundant, but great slaughter was carried on at the time that sheep-farming was at the height of its vigour. Since then—and it may be reckoned for general purposes that it was concurrent with the decline of sheep-farming in the Highlands, and the afforesting of large tracts for deer—the Golden Eagle again became commoner and commoner, until at the present day once more they threaten to become a serious pest, and no longer require the legislature to step in for their preservation. Such legislation carried too far closely approximates to a form of "grandmotherliness." Proprietors may indeed now be left unfettered to judge for themselves how far they may be allowed to increase or to check unnecessary increase.

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[1] I observe that in our MORAY Fauna, vol. ii. p. 66, I have allowed a misprint to pass through proof, viz. "Aberfeldy" for "Abergeldie." Aberfeldy is in TAY, and Abergeldie is in DEE.

I also observe that Seebohm makes no mention of last date of the Honey-Buzzard nesting in Scotland, and indeed dismisses that country in about three lines as regards the species, except that he acknowledges the fact that "formerly bred, etc." Yet, as is his custom, he devotes whole pages to the habits and history of the species as observed abroad, and in any country, by preference to giving the British distribution, etc. I do not know whether this was due to carelessness or not, but the entire omission of the Honey-Buzzard from the table of contents must surely have been so (*A History of British Birds*, vol. i. p. 69).

In the eastern parts of our area there are still some Eagles' residences, but they are not yet so common there as further west. In the Rev. H. A. Macpherson's MS. there is an account of two eyries within two miles of Glen Shee, which existed about 1870. About that time a keeper killed the old hen and two young, and these were all stuffed at Blairgowrie. This was related to Rev. H. A. Macpherson by an old resident of the glen, who in 1901 was in his ninetieth year when he gave the above particulars.

We can, however, go further back for records in the north-east, as Don in 1813 speaks of their breeding in Glen Clova at that time. Nor need we go far from that at the present day to find a pair still occupying an eyrie in one of the neighbouring glens which form, as it were, the hollows between the giant ribs of the Grampian range in the north-east. Eagles, when in search of prey, usually follow the sky-lines, hunting the higher grounds for their favourite food, Blue or White Hares.

"About 1850," as Mr. Dewar informed the Rev. H. A. Macpherson on May 23, 1901, on the occasion of that gentleman's first visit to him,[1] "there was then living at Taymouth an old keeper who did more than any one else to exterminate Eagles, Martins, Foumarts, etc. He had covered the walls and ceiling of a room with their remains." Eagles were much more numerous when Mr. D. Dewar was a lad.

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[1] The Rev. H. A. Macpherson first visited Mr. D. Dewar, Remony, on 23rd May 1901. He says of him then : "Mr. Dewar of Remony, who contributed so many birds to the Perth Museum, a smart, thick-set, active man, grey but not old, who talks freely of what old keepers told him when he was a lad about 1850," etc.

Again referring to our north-east borders, though at a later date, Mr. Milne quotes one shot at Clattering Brig, Glensaugh, on the property of Sir John Gladstone, in the spring of 1895. He adds: "They frequently visit Drumtochty and Glensaugh Muir. The one quoted above was accompanied by a male." Again: "Two were seen passing over the Glensaugh Hills by a party of sportsmen who were grouse-shooting. The Eagles succeeded in spoiling their day's sport completely for them. Drumtochty appears to be a favourite haunt of Eagles—even as I now write—and the proprietor has issued orders to his keepers that they are to be destroyed. Indeed, there are almost annual reports of their appearances in the district. Thus, I have constant reports all along for the years 1896 to 1901, and subsequently, and they are reported from several other reaches of the southern spurs of the Grampians. But they are decidedly scarce in the true lowlands of Strathmore—as indeed elsewhere in all lower-lying grounds—as is naturally to be expected.

Further along our northern border their numbers are such as scarcely to call for any special mention. at least not in any detail. But, to give one item anecdotally: Mr. Macgregor, keeper for many years at Drumouchter, told me in 1870 that he was present when Roualeyn Gordon Cumming took the Eagle's eggs "out of the Black Rock (Craig dhu) of Loch Ericht." "The rope," he said, "was just a stone in weight," and was carried up to the rock on pony-back. The eggs were taken out by means of a pitchfork, to which a piece of netting was tied." This account was also spoken to as correct by Mr. Macdonald, the hotel-keeper at Dalwhinnie, who was present also when Gordon Cumming exploited the Black Rock Eagles, and was still at Dalwhinnie when Col. Feilden and I took the Dotterell's eggs in the neighbourhood in 1871. Macgregor was also the keeper who took the eggs of the Goosander on Loch Ericht side in 1870, and forwarded them to Dunipace when I was away in Norway (but see under species).

Now, as I have said, Golden Eagles have become very abundant to date, and complaints are numerous from our Highland districts. I cannot help thinking that sentimentality is becoming rabid amongst our bird-preservers.

Millais relates the sudden appearance of an Eagle, and its lowering its flight above the lawn at Bowerswell House, Perth. He says: "The bird lowered over the house and garden for several minutes. This would be about the year 1873." Millais continues: "Since then I have rarely seen Golden Eagles in the Tay valley, as they seldom descend to the lowlands. I once saw no less than six Golden Eagles on the wing at the same time, evidently old birds teaching their young to soar. This was on the Bentoig beat in the Blackmount Forest (ARGYLL)."[1]

An eyrie, long deserted in Glen Tilt, was reoccupied in 1887 and 1888. The eggs came into the possession of Mr. MacLeay of Inverness. I am not aware that this eyrie has been again occupied.

I have later information as to certain still occupied eyries, but I refrain from remarking upon them, as I am not aware what the wishes of the proprietors are regarding them. It is possible they may desire to protect them, and not allow them to be raided on behalf of any museum, *privileged or otherwise*; but, on the other hand, these proprietors may desire their destruction for reasons of which, in most cases at least, they themselves are the best judges, and they may not wish to be interfered with in their judgment by scraps of grandmotherly legislation carried out very often in a fine old grandmotherly way to suit all parties, or none.[2]

From the north and north-east of Fife, naturally there is little to be mentioned. But Mr. W. Berwick tells me it is an occasional visitor, and that "one was observed at Stravithie, and two near Mount Melville a good many years ago."

### Haliaëtus albicilla (*L.*). Sea-Eagle.

Rare, or perhaps quite extinct. Certainly extinct as a breeding species in the area.

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[1] Further referring to this district, Millais relates that "James M'Coll showed me the eyrie of two Eagles which he said had been tenanted from time immemorial, and that the nesting in it had been in use for centuries seemed probable, because the hill on which it exists is known as the Eagle's Hill.

"Now, the interesting part relating to this pair of birds is that one of them is WHITE —a whole or partial albino. I saw the two birds belonging to the nest during earlier days stalking on the home-beat, and although the distance was very great, I could see that one of them was of an unusually light colour, which may have been dirty white at closer range. I have cited the above, because variations in plumage amongst Eagles are extremely rare." (See also under White-tailed or Sea-Eagle.—J. A. H.-B.).

But I am in a position to state that this very rock—named Craig an Iolair—notwithstanding its name, never held the nest of the Eagle in the memory of the oldest forester on the ground, and who is still alive and vigorous, and the probability is that the mistake lies with Millais' informant. Considerable pains have been taken as to the rights of this matter.

[2] In thus now and then making critical allusions to our latest bird-preservation Acts, I by no means desire that I should be taken as seriously objecting to the Acts as a whole. But I do desire to express my firm opinion that much of the said legislation is quite unnecessary and uncalled for; and further, that their significance is not fully realised by those living at a distance who are unacquainted with local requirements.

Don spoke of an ancient inland nesting site called "Erneskillies, among the Clova Mountains, where they bred" (?). There is, or was, one bird in the Montrose Museum, but without any authentication whatever.

In 1864 the Rev. Henry Hussey, The Deanery, Peterborough, recorded their presence on Loch Tummell.[1] He relates the occurrence of an Eagle "taking a fish of about two pounds weight from the surface of Loch Tummell within 150 yards of the boat from which he was fishing, the tail of the bird appearing white at that distance." But with rare caution, not always exercised in giving such accounts, he admits that at that distance the tail, as seen, may only have been partly white. Personally, I consider that the extreme likelihood was in full favour of the occurrence of the rarer species. I cannot, however, feel so confident as to the Eagle seen on Loch Ericht, to the north-east of Loch Rannoch (not north-west as originally stated); and the subsequent remarks must be held as more likely applying to the commoner species. It may be well, however, to note that in all probability the White-tailed Eagle was nesting at that time in one or two localities not far removed from one another in that same neighbourhood.

Now, when the late Mr. E. R. Alston was residing in Glencoe, in 1870, he wrote in his journal—now at Dunipace—as follows: "W.T.E.—The Loch na Baa nest has not been used for several years. The keepers on the other side poisoned one with strychnine. The survivor got another mate, and they poisoned both. The nest was on a low rocky island, and might be said to have been on the ground." Mr. Alston speaks of several other eyries in the neighbourhood, "*all on trees*, except the above."

Following upon this account, Col. Drummond Hay in 1880 relates —on the authority of James Stewart, head keeper for many years on the Earl of Mansfield's shootings in Rannoch—that "some years previously a pair of White-tailed Eagles nested during several years in an old fir-tree in a corner of the Black Wood of Rannoch close by the loch side," and Col. Drummond Hay expresses himself "satisfied that these were no others than the true Sea-Eagle and not the Osprey." He also speaks of a nest in a tree on Loch Luydon, where "a pair of albino Sea-Eagles were in occupancy. The young were taken and sent to Scone Palace"; and Col. Drummond Hay had frequent opportunities of seeing one of them, an albino White-tailed Eagle, in confinement. Parents and young were "alike of a pale dove colour or ash colour."

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[1] I think I met the Rev. Mr. Hussey many years ago—about 1869—in Sutherlandshire. I can remember that he was interested in ornithology at that time, as well as being fond of fishing. I think also he and I spent a night on the heather at the back of Ben More.

It appears from the above notes that two pairs of Sea-Eagles frequented the islands of Lochs Luydon and Baa, both of which lochs drain towards the east by the Gower river to Rannoch and Strath Tay *viâ* Loch Tummell, because there appears to have been no knowledge of albino birds having come to Mr. Alston's notice, and which Col. Drummond Hay speaks of as inhabiting a tree-nest on Loch Luydon, some years prior to his interview with Stewart, the keeper. Now, "the keepers on the other side," mentioned by Mr. Alston, would be the keepers upon the grounds of the Black Mount Deer-forest, and not keepers on the Moor of Rannoch shootings, as I am personally acquainted with the marches between the Black Mount and The Barracks shooting. Besides, the Loch Baa nest is distinctly stated to have been "on a low rocky island," etc., whereas the Loch Luydon one was described as "on a tree on Loch Luydon."

I was residing at The Barracks, and deer-stalking over the ten-mile reach of the wild Moor of Rannoch, east of the boundary-lines of the Black Mount Deer-forest, in 1874. I also heard of the Eagle's nest on a tree on an island of Loch Luydon. The tale was told to me by my stalker, young John Macgregor, as told to him by older men who remembered the fact well. And later, I received additional evidence from one of these older men, who was our pony-man, Duncan Campbell. He personally remembered their presence there, but I cannot remember, nor do I appear to have any note of any mention of the albino colour of the birds. But it is quite likely that my older informant placed little importance upon that, owing possibly to his only being acquainted with that one pair. The tale was told to myself and companions at the old "bothy" on the moor—some ten miles from the shooting-lodge—and which still stands, and may be looked for by those who are curious, to the left of the present railway line, near the west end of the great expanse of the Moor of Rannoch, and not two hundred yards from the present railway fence, and about one and a half miles from the march with the Black Mount Forest.

Later on, I fished Loch Luydon for trout, and I saw the nest, which was pointed out to me as that at one time occupied by the Eagles. That same year in which I saw it in September, I was assured it had been taken possession of and occupied by a pair of Herons. And there is now, as I write, a quite considerable colony of the latter species.

Needless to say, these two or three pairs of White-tailed Eagles' old haunts are now almost ancient history.

In 1870, also, I can remember that a White-tailed Eagle, which had been trapped or shot upon the grounds of Dalnaspidal shootings, was, and perhaps still is, preserved in the shooting-lodge there. It had been obtained some time previously by the then keeper. May this have been a dejected remaining mate of one of the above-mentioned eyries? I think this is extremely probable, because the lie of the country suggests it—a direct lead being obvious across the country from the wilds of Rannoch by the precipitous sides and trough of Loch Ericht, and by the pass of Dalwhinnie, Drumouchter, and Dalnaspidal, through which defile the railway now runs. I can remember driving over this high pass before the railway was projected or formed, somewhere about the year 1861 or 1862. I was in company again in 1872—if I recollect aright—with Mr. Macgregor, keeper at Drumouchter, who had at that time been some twenty years in that service, when the presence of this specimen was announced, but I never had the opportunity of seeing it. Macgregor never knew of any White-tailed Eagles nesting on the sides of Loch Ericht, nor of any frequenting it. This is not to be wondered at, because, except at the extreme west end of Loch Ericht, the whole loch is profoundly deep and not likely for the Sea-Eagles' requirements.

Nor had the keeper at the west end of the loch, Mr. M'Cook, ever seen a Sea-Eagle, though he knew well of the nesting of the Black Eagle there.

Macgregor was an observant and truthful man. He retired from duty, after some forty years of service in the same locality, and ended his days at Kingussie.

I have little to relate of the presence of the Sea-Eagle in the north-east of Strathmore, or any other part of our area, either past or present. In 1866 Mr. Geo. Bruce fully records a female shot at Kinkell, near St. Andrews, on 29th September 1866, and this specimen "is now in the College Museum" (*Birds in and about St. Andrews*, p. 71).[1]

And I find it included in a list made out for me by my friend Mr. Canch of the specimens in that Museum, and it is also included in Mr. W. Berwick's lists.

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[1] **Once more let me say, that while accepting many of Mr. Bruce's records, I do not lose sight of the fact that many others cannot be taken seriously.**

Seebohm in his *History of British Birds and their Eggs*, etc. (1883), has it that the White-tailed Eagle was far commoner than the Golden Eagle; but I am very sure that what he has applied generally, could only apply very locally, say twenty years earlier; and I imagine he was simply thinking of one reach of high cliffy coast in Skye when he wrote that statement. By 1890 there were none left in Skye. Seebohm speaks quite "blunderingly" when he throws discredit upon the "deeply-rooted impression" that the birds "were nigh extinct in Great Britain." Such a criticism from such an authority only misleads those who may justly repose confidence in his general knowledge, but who fail to realise (or recognise) that such efficiency does not cover local knowledge. Indeed, altogether, the reflections made upon the probable fate of Scottish Eagles can only be looked upon as "blundering delusions."[1]

Mr. John Colquhoun has repeatedly been reported as having shot an Osprey (according to some), or a White-tailed Eagle (according to others), at Loch Baa site, but I have positive information to the contrary from his son Allan—my personal friend—who distinctly assures me that his father *never shot an Osprey on Loch Baa*, and that the only Sea-Eagle he killed was one at Cape Wrath many years later (see my last volume under species).

### Astur palumbarius (*L.*). Goshawk.

Very rare.

Mr. R. Gray quotes one early record from Macgillivray in 1835, and he also tells us of one "at Glamis about five years ago," *i.e.* about five years prior to Mr. Gray's writing (or say 1866). It had been caught in a pole-trap. This is admitted as a good record; but I have elsewhere stated reasons for great care being exercised when accounts of "Goshawks" reach our ears, and I need not insist again upon the facts. I may however, I believe, safely admit one other—of several

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[1] And I may add, in this place also, as I am criticising his work as regards Scottish matters, that in similar manner his remarks about the distribution of such species as Marsh-Harrier, and Hobby, and a good many other birds, in the nesting season, if eyed through local-knowledge glasses, will be found wanting, and it will be seen how utterly the author fails to *apply his general knowledge* to local facts and circumstances. I do not wish to harp upon the thread too much, but will only instance the "Hobby occasionally breeding in Orkney"—a very ancient fallacy; and the Kite was still found breeding in "most of the glens" where Booth collected "some six years ago," *i.e.* six years prior to when Seebohm wrote *his History*. No one has, I think, hitherto considered it worth ink to correct such statements, so it is possible they might "live for ever," if not blotted out.

I have had reported to me, viz. one obtained in Forfarshire in 1825, and seen by Fenton, a well-known taxidermist of Edinburgh, who was not a man likely to make any mistake. All very early records of "Goshawks," however, must be relegated to oblivion, with the very few exceptions we are well aware of.

Dr. Dewar simply—no doubt quoting from the above—marks it "very rare."

J. G. Millais has two Goshawks in his collection, which he writes me he obtained in 1883; and he believes, as informed by Mr. Boath, the headkeeper at Rohallion, that they bred there for several years previously. Millais adds: "And it is a pity he destroyed them, as they are probably the last pair that bred in the country. Rohallion, with its great craggy fir woods, was to my knowledge the last stronghold of both Goshawks and Kites." The above record has not to his or my knowledge been given anywhere before. The part where these two birds were obtained is a large old wood of firs and larch, just the sort of place where such rarities might be expected to find a final sanctuary. Millais goes on to say: "Stuart, the headkeeper on Kinnaird (since deceased), also used to speak of having killed Goshawks about the same time; and doubtless a pair or two frequented the whole range of his long forest, which stretched from Rohallion to Trochray, and again up the main valley of the Tay, past Dunkeld and Dalguise, as far as Logierait (Ballinluig)."—See old Statistical Maps, scale 1″ to the mile, sheets 47, 48, and 55. The above is an interesting item in the history of the Goshawk in Scotland; always supposing that, in the case of Stuart's statement, he was not confounding this bird with the Peregrine. In any case, however, Millais' two birds killed on Rohallion are of great interest. James Keay, who was keeper at Murthly, however, never remembered either Goshawks or Kites upon that estate, which is adjoining. He was keeper there for forty years. Millais thinks the birds kept pretty closely to the range of hills on the west side of the Tay.

I have the record of a Goshawk killed in Kemback Wood, near St. Andrews, in 1842 (*fide* Mr. Berwick, of Pathcondie, Monimail), but what became of the specimen in question I am not aware. However, one certainly was obtained not very far distant, viz. at Elie (FORTH) in 1877, and I have seen a sketch of it, done by Mr. W. Evans from the bird when it was in the possession of Mr. Small, Edinburgh.[1]

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[1] Col. Drummond Hay was in error when he said that this Elie bird was recorded by Turnbull in his *Birds of East Lothian*, because, as Mr. Evans points out, that book was issued ten years before the said bird was killed (cf. *Scot. Nat.*, 1886, p. 366).

The bird above mentioned as having been killed at Kemback may possibly exist in a collection in St. Andrews which is known to Mr. Berwick, and may yet be heard more of. "It was," says Mr. Berwick, "winged, and afterwards found in Kemback Wood, then kept alive in an old parrot's cage for several weeks; but the cage being too small, it broke its feathers, and the party gave it away" (Mr. Berwick *in lit.*, 11th August 1905). Bruce, however, mentions under Goshawk "a big white hawk" (*op. cit.*, p. 94), which was obtained at Dura Den, about six miles from St. Andrews, in that year (1842), which may refer to the same spoken of by my correspondent, Mr. Berwick.

### Astur atricapillus (*Wilson*). American-Goshawk.

Mr. Robert Gray mentions one of this rare visitor which was got on the flanks of Schiehallion, apparently paying attention to a flock of Snow-Buntings (*Birds of the West of Scotland*, p. 39). Mr. Gray procured the specimen in a comparatively fresh condition, and had it mounted, and I can well remember seeing it several times in Mr. Gray's possession, both when he resided in Glasgow and after he removed to Edinburgh. This bird was got in 1870, some short time before Mr. Gray found it in a recently skinned condition, along with some Snow-Buntings from the same locality (*loc. cit.*).

### Accipiter nisus (*L.*). Sparrow-Hawk.

Common. Resident. Breeds.

Although regularly persecuted as destructive vermin, still holds its own fairly well. So said Col. Drummond Hay in 1880, and the same may be said to be the case still in 1904. I have no exact accounts of the numbers destroyed annually, as the Sparrow-Hawk is only included under the general column for "Hawks" in all the vermin lists I have received.

As long ago as 1473 this courageous little Hawk was valued for purposes of falconry, as may be shown by the entry: "Item, 11th September 1473. Given to a man of Dauid Oguiluy's of Inchmartyne, that brocht a spar-hawk to the King, iiij." (*Accounts of the Lord High Treasurer of Scotland*, vol. i. p. 45).

A few years previous to 1901 a Perth bird-stuffer sold a white specimen of the Sparrow-Hawk to Mr. Marsden, Bristol; and Mr. Marsden told me that he sold this same bird to the Tring Museum authorities, 20th November 1897. Mr. Marsden informed me that it is scarcely a true albino, but was of a pale cream colour, in fact, practically white, but the head and back grey. It was shot at the end of October, and was got on the banks of the Tay, near Perth. It was sent to Mr. Marsden by a Mr. Macgregor.

Although frequently shot, and though many are destroyed, the plucky (but naughty) bird holds its own wonderfully in the country still.[1] According to Bruce it used to be—and may still be—common around St. Andrews. He instances quite a number of its nesting places, such as Tentsmuir district, Kinglassie, and Lathoken Point; and I know some of these were known to the late Mr. J. R. W. Cook (and his son) and Mr. Allan Briggs. I would be sorry to hear of its extinction, but proprietors may perhaps be considered the best judges as to the regulation of their numbers on their own grounds. I speak of owners of lands as a whole class, not of some individuals who own land, and for whose guidance and restraint it may be advisable to issue general laws.[2]

**Milvus ictinus**, *Savigny*. **Kite.**

Old Gaelic name, *Clamhan gobhlach* and *Croman lochaidh* (old *Statistical Account*, vol. xvii. p. 248).

Rare now. Formerly very abundant. Nested.

Col. Drummond Hay spoke of it in 1880 as "Still a few places where they can rear their young undisturbed." I do not desire to make any alteration in 1904. But see the warning given under Buzzard, where I have indicated that the name Gled or Glede is often erroneously applied to the Buzzard. I have had numerous accounts sent to me about a great increase of "Gleds" in several places in Scotland, including the present area, but on investigation most of these turn out to belong to the much more abundant Buzzard distribution.

In 1813 Don included it without remark thus: "*Falco milvus*, the Kite or Gled."

In 1865 the late Mr. E. R. Alston records in his journal seeing "an indubitable Kite sailing up the Tay valley above Murthly, which disappeared up Strathbraan, on 15th October 1865" (MS. journals of date).

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[1] There is a somewhat interesting note by the Rev. Mr. Lapslie (old *Statistical Account*, vol. xv. p. 328). He tells us: "Children tame them for pets in Campsie parish, Stirlingshire" (FORTH). I take note of this here as an opportunity of drawing attention to Mr. Lapslie's accomplishments as a naturalist of those days, far beyond the most of our old statistical writers, and as worthy of consideration.

[2] Seebohm states that the Sparrow-Hawk breeds constantly on "moors along with the Merlin and Kestrel." This is quite new to me, but perhaps the author referred to some other country than Scotland (or Britain?). I am not aware indeed of any instances, but I do not here trouble to hunt for such, though I am willing to admit that such a departure might take place, and perhaps even *constantly* in one peculiar breed of Sparrow-Hawks.

In 1883 Mr. John H. Gurney also claims to have seen a Kite in Glen Clova, Forfar (*Trans. Norf. and Norw. Nat. Hist. Soc.*, p. 517). This was on 27th February 1883.

The mention of Kites by Mr. Horn in 1879 is of too vague a nature to warrant repetition here.

There is a Kite in the Perth Museum which is (or was) labelled an adult, but the late Rev. H. A. Macpherson saw it, and he pronounced it to be a bird in the first year's plumage (*in lit.*, 15th February 1901).

The true Kite was believed to nest in a locality in the north of the area as late as 1877, and was frequently reported to have done so, and was even stated to have continued to nest there for some little time afterwards. But the factor was only aware of the one pair which were seen by the gentleman who reported it at the time. This was in February 1877. I remonstrated at the time for having disclosed the site, but was answered by the person who recorded the fact that he "did not think that there was much chance of outsiders invading the locality," and gives us the information that "keeper" in Latin is *custos*! Be that as it may, and I do not question his classical knowledge, the Kites had to all intents become extinct almost immediately after he made his statement. But in the returns sent me by His Grace the Duke of Atholl he never mentions Kites as having been present within his knowledge during the forty years he has had to do directly with the properties, though he does mention "all the rarities that he had been aware of" during that time. If returned to the office, they may have been entered simply under "Hawks." And two gentlemen, who are well known as careful recorders, informed me: "We were told in 1902 that the 'Gleds' were extinct there now," the last one having been killed more than a dozen years ago (say, to fix a date, before 1890). Alas for the custody! The same two gentlemen told me also that "three years ago (say 1898) a keeper, whose word we had no reason to doubt, informed me that he had seen a 'Gled' on his beat near Ballinluig" (*in lit.*, 20th November 1902).

Now in 1870 my friend Mr. James Lumsden, of Arden, Dumbartonshire, told me (*in lit.*, 3rd June 1878) that he saw a fine Kite within forty yards when driving through the Pass of Killiecrankie (see also Gray's *Birds of the West of Scotland*, p. 42, where I find I had noted the fact in my interleaved copy).

Mr. D. Dewar assured me he "only once got a Kite, and that was about fifty years ago" (say 1853 or thereby). Mr. Dewar adds: "I got it with Capercaillie's eggs as bait."

I have, however, been told that another cause may have been the true one for the disappearance of the nesting Kites in our area, viz. the severe gales which levelled so much fine old timber in that and other districts throughout Perth and Strathmore, and destroying their favourite trees on which their nests were placed. At all events none have been seen since at the old nesting haunts, though I have heard vague reports of "Gleds" from some sources.

In the west I had vague reports of their nesting in Rannoch, but I have never been able to verify these statements. This was in 1874; nor have I any satisfactory accounts since from any part of the west or south-west.

From the latter I had very detailed accounts of Kites nesting in a secluded position, but investigation again revealed that in every case the name "Gled" had been wrongly applied to Buzzards, which are abundant on the stretch of country referred to in my correspondents' accounts, some six or eight pairs indeed nesting in the gullies and rocks and by the steep sides of watercourses.

I have never seen the true Kite anywhere within the bounds of TAY, but I have seen it close to these borders (in FORTH), once at close range, and had I been carrying a gun I could have easily shot it, as it was quite tame. It was on a Sunday, which was lucky for the bird, because at that period of my existence I am afraid the temptation would have proved too much for me! That would be in the years of the early sixties. At that time I carried a gun every day in the week except Sunday, and sometimes wished I had a gun that day as well!

I conclude this somewhat "bare account of empty benches" with an early record of the Kite in the east of Fife supplied by my friend Col. H. W. Feilden (*Annals Scot. Nat. Hist.*, 1900, p. 49), as follows:—

Col. Feilden placed in my hands an interesting old letter which, among other items, contains an early record of the Kite in the county of Fife. The letter is dated from Cambo House, 22nd August 1844, and over the signature of the present baronet, Wm. Leyland Feilden, who at the time he wrote it was nine years old. Col. Feilden adds that: "There is no question about the correct identification of the bird, for it was stuffed, and was for years after in my father's collection." The passage in the letter is a short one, and as follows: "James shot a very fine Kite the other day; he had set about a dozen traps for it, and at last he shot it." Col. Feilden adds: "James, who shot the Kite, was James Forrester, the gamekeeper at Cambo House, Fifeshire."

Of another old record I have the following also from Col. H. W.

Feilden: "14th May 1856.—When in Perth to-day I was shown a Kite, in the shop of Ansell the gunmaker, just sent in from Rannoch" (H. W. F. *in lit.*, 12th January 1905).

My friend Mr. James Davidson informed me that when he was shooting near Pitlochry he was told by the keeper (*custos!*) at Urrard that there were a pair going about, and that "*all the keepers were after them for the feathers!*" (*in lit.*, January 3, 1905).

Millais, however, writing me later, says: "Up to the year 1879, Messrs. Anderson, fishing-tackle makers, formerly of Dunkeld, and now of Edinburgh, used to obtain one or two Kites annually from Perthshire, which they used for fly-dressing. One of the last killed in Perthshire is now in my possession. It was killed in 1879."

I have since been informed that the true Gled or Kite occurs still occasionally at one locality near the Tay valley, but at the same time my informant told me that he had never known of its nesting there, though he had been a long time keeper at the same place.

The Messrs. Anderson have sent me particulars of the last they obtained from the district; and these agree with the above notes contributed by Mr. Millais.

### Falco candicans, *Gmel.* Greenland Falcon.

### Falco islandus, *Gmel.* Iceland Falcon.

The remarks under these two Falcons, except where the records are quite definite, cannot be inserted now after so long a time. We may accept as certain two as specimens of the former, viz. that at Rannoch, and that at Foss on Loch Tummell.

Don's record may be correct, but under the circumstance that it was only seen by him, as given below, I cannot feel certain to which species it belonged.

And the one reported at Drumouchter I have been unable to trace any further history of, although Macgregor said it was *very white*, and may have been, from his description, another Greenland Falcon.

The others mentioned may have been Greenland or Iceland Falcons.

I now give these records in detail. Col. Drummond Hay tells us of a Greenland Falcon which was identified as such by Mr. Hancock as follows: "A very fine female of the second year's plumage was shot on the 17th May 1888 by Mr. John Donald, gamekeeper to Sir Robert Menzies, by whom it was presented to the Perthshire Museum of Natural Sciences, where it now is."

Mr. R. Gray is our authority for an immature male obtained at

Foss, on Loch Tummel, Perthshire, in the spring of 1862, and which is now, or was then, in the collection of Edward C. Newcome, Esq., of Feltwell Hall, Brandon. It was shot by J. Campbell (*v.* Gray's *Birds of the West of Scotland*, p. 21).

Col. Drummond Hay considered these two to be the only ones authenticated at the time he wrote his latest paper in 1880.

In the Montrose Museum there is a bird with the following legend: "Gyr Falcon" (*sic*), and the note: "This bird was shot by Mr. John Cowie, gamekeeper, Fettercairn, December 1870. It had a leather thong round one of the legs, which is still on the specimen" (Montrose Museum).

Col. Drummond Hay also believes that he saw a Greenland Falcon —or an Iceland (?)—at Castle Menzies, when he (Col. Drummond Hay) was a lad.

Don's early account is to the effect that he saw "one of this species" (naming it *Falco candicans*, "Gyr Falcon") "on the estate of Mr. Robertson Scott, of Hedderwick, in September 1810"; but he adds: "I rather think it is rare." I think there can be no certainty of the species.

In 1870 Mr. Macgregor, Drumouchter, told me that he had once shot "a large white Falcon" on his beat. And when I showed him a photograph which I had just obtained of a bird belonging to Lord Lovat, and which Mr. M'Leay, Inverness, had given to me a few days before, Macgregor said "That was the bird," and further described it as being "very white." I was not, however, able to trace where this bird went to, or if I did, I did not make a note of it at the time.

Mr. D. Dewar got a large Falcon, apparently an Iceland Falcon, near Killin, and this also I have not traced. Subsequent inquiry has not resulted in more definite results.

Since the above account was written I have been enabled to ascertain that a Rannoch specimen was sent to Mr. Small, of Edinburgh, for preservation, and it appears in his register as an "Iceland Falcon," under date of 11th May 1888 (Small's registers, from 1866 to date).

### Falco peregrinus, *L.* Peregrine Falcon.

Common. Resident. Breeds.

The old *Statistical Account* has some more than usually interesting remarks, culled from previous accounts, *e.g.* "Falconers came even from England to take away the young ones from the eyrie near Moulin, Perth" (vol. viii. p. 58). Again: "The real Game-Hawk" (*op. cit.*, p. 572); and, "A pair from this locality" (viz. Glen Turrit, Perth) "was presented to the king at his coronation, as a token of his holding the Isle of Man of the Crown of England." This was given by the Duke of Atholl, and was intended with reference to the falconer's term, "the Isle of Man breed, or true game-kind," and was doubtless done to show the king that the true breed could be got also in Atholl.[1]

There can be no doubt of the former great abundance of these noble Falcons all over Scotland in every suitable site. And even now, in 1904, it is far from being a decadent species, and long may it remain at least very far off extinction!

It was so abundant that Col. Drummond Hay expressed his appreciation of the fact no longer ago than 1880: "Thus Craig-y-barns at Dunkeld, Kinnoull, and Moncreiffe cliffs, and many other places, had their occupants. Indeed there was not a rock or a cliff suitable for the purpose of nesting and rearing their young that a pair of Peregrines did not take up their quarters in, and would still do so if allowed." So much, then, for their status in, say, 1880.

As I have said, it is still in 1904-5 too common to require minutely detailed accounts; yet, as Mr. Horn truly says, "The Peregrine is much rarer than it used to be," *i.e.* in the north-west.

In the east of Strathmore it is resident but not common, as Mr. Milne informs me; nor can we expect it to be so, except at the comparatively few places which are really suitable. One is mentioned as having been shot in Drumtochty Glen, which has been preserved in the Castle collection. There is a passage in the *Black Book of Kincardineshire*, which was published privately by the Spalding Club (1879), and is now rarely to be obtained, which passage I think is worthy of being reproduced. "Fowlsheugh is noted for being the breeding-place of that noblest bird of prey, the Peregrine Falcon, of which each season a single pair have their nest in the rock, and never more, in accordance with the maxim adopted by these birds, 'to suffer no brother near their throne'; and if one of the pair happens any one year to be killed, it is observed that its place never fails to be supplied next year" (see Sim's DEE).

Mr. Milne informed me (9th June 1897) that three young were taken from the eyrie at Muchalls on Wednesday morning by Mr. M——. This is, I understand, only an alternative site.

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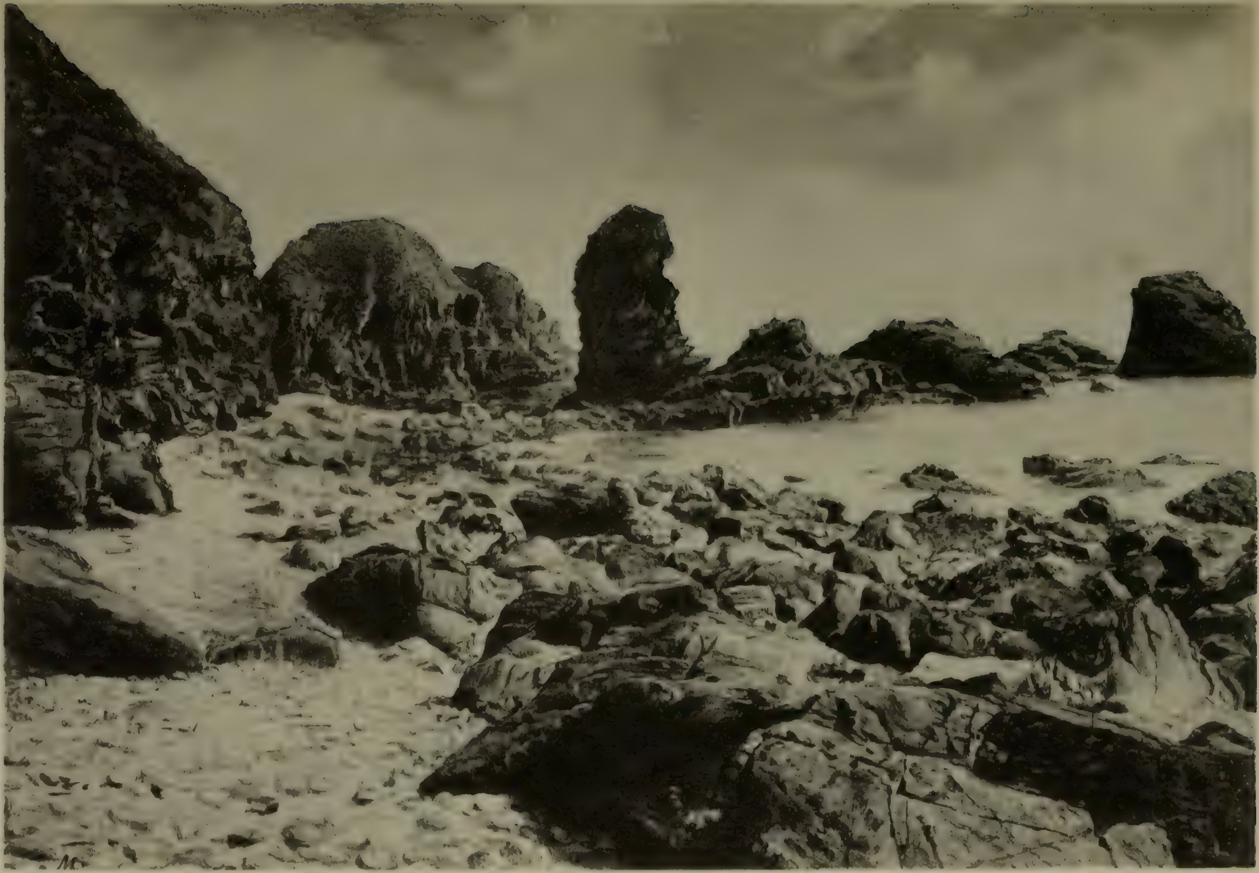
[1] The above calls to remembrance a somewhat similar misnomer, viz. the name given to our old Scotch terriers by a "discoverer" of the breed, who promptly called them "Aberdeen terriers," and thereby secured a good-going sale for them in many parts of England. Personally, I have no objections to trinomials, provided a geographical value be expressed, but the above is a bad, though typical, result of calling things "nonsense names."



THE OLD MAN O' MUCHALLS, KINCARDINESHIRE COAST.

On the coast further to the south it is also known to breed, and had young in 1903, and they are there now (1904).

Dr. Dewar also adds information as to several other sites at inland localities within his district, the names of which it is quite unnecessary to mention; because also there are some collectors who imagine that they are much rarer than they are, and therefore might try to make them rarer still.

As long ago as Don's time he tells us he had seen one used for purposes of falconry by the servants (!) of the Laird of Balnamoon, *i.e.* about the year 1772, and of one which had "eloped from its master on the 24th October of that year, and was killed on the 26th at Mostyn in Flintshire. It had four heavy bells on its feet."

Between 1854 and 1886 many Peregrine Falcons (and many Buzzards) find entries in Mr. Small's registers, and are quite too numerous to warrant my occupying space with details.

The north-east of our area seems to have been prominent in historical eyries of Falcons. In 1793 "the Hunting Hawks" have for ages been renowned in the Mearns; and the noble family of *Falconer*, now Earls of Kintore, and *Hawkstone*, their ancient residence in the county (Kincardineshire), may be stated in evidence. A pair occupy an inaccessible rock near Dunottar, and regularly send off a young colony year by year to shift for themselves beyond the limits of the parents' range (*Black Book of Kincardineshire*, p. 397).

In the south-west several eyries are known to me in the Loch Earn district and in that of Glen Artney, as also westward to the marches of FORTH and CLYDE with TAY. I also know of sites in the south, and outside the TAY area within FORTH—all inland eyries.

In the south-east, *i.e.* in Fife, however, Col. H. W. Feilden is sure that no Peregrine Falcons bred in that part, nor on the east Lomond between 1850 and 1855 (*in. lit.*, 5th October 1904).

I am informed by His Grace the Duke of Atholl that the following Peregrines were killed on his estates, with the exception of four of them: 2 in 1875, 2 in 1876, 4 in 1877, 4 in 1878, 2 in 1879, 3 in 1881, 7 in 1883, 2 in 1884, 2 in 1885, 1 in 1886, and 4 in 1887—33 in all. In the regular vermin lists sent in for the estates these birds are not separated from "Hawks"; but none are stated to have been obtained since the date last given. I trust therefore that some measure of preservation has since been accorded to these noble Falcons. 2590 "Hawks" were paid for at the offices between the years named above. The largest number was obtained in 1901, viz. 344; and in 1896-7 the fewest, viz. 112; and the next fewest in 1895-6, viz. 212.

Mr. W. Berwick informs me that the Peregrine used to have a nesting place near Newburgh and in the Lomonds, but without mentioning any dates. Col. Feilden does not, however, appear to have known of the fact between 1850 and 1855 (*vide supra*). I have in my mind's eye a situation near Newburgh, where a quite possible site might have existed before the railway was formed, and subsequent inquiries have proved this to be a correct supposition, while other former sites were at Earlsferry and at Kincraig.

### **Falco subbuteo**, *L.* **Hobby.**

Rare. Mostly an autumn visitant; but has been known to breed within the area. Sir Edward Newton records it as having nested near Kinnaird House in Perthshire (*Zool.*, June 1889, p. 32). This record is, I consider, in every way worthy of full repetition. After criticising a previous statement (or referring to it) Sir Edward Newton says: "On the 29th August 1887, I saw, at Kinnaird House—a small shooting, belonging to the Duke of Atholl, on the right bank of the Tay, and about half-way between Dunkeld and Grandtully—nailed to the keeper's 'larder,' an unfortunate old Hobby and three young ones, nearly full grown and fledged, but with the down still hanging on their heads and backs. The keeper told me he had got them that summer from a nest in a tree on the other side of the river; and on my remarking that they were not likely to kill his game, he answered he knew they fed chiefly on insects, but still they were 'harks,' *and that was enough for him.*" (The italics are mine.)

These birds are again referred to in a marginal note (*auct.* Sir E. Newton), in a copy of Mr. Howard Saunders's *Manual of British Birds* (1st edition), which was the property of the late Mr. Henry Evans, of Jura Deer Forest, and which has passed through my hands. The writing, I think, is that of the late Mr. Henry Evans. The date attached is "1887."

Stuart, the then head-keeper on Kinnaird property, also informed Millais that he had killed a nesting Hobby about 1883 or 1884. Stuart had been many years keeper at Kinnaird. He is since deceased.

Mr. Eedle also mentions its occurrence upon the hoardings of keepers in Rannoch (*Zool.*, 1871, p. 2656), and I myself also saw a female hanging on such a place in 1874. This same day, when a party—of which I was one—was shooting the Crosscraig covers, I also saw the male—a lovely old black-moustachioed bird—which passed over my head twice in two successive drives along the sides of a round knoll which was covered by a dense growth of coppice of birch and oak. I could easily have shot it, but carefully refrained. It was not with pleasurable sensations that afterwards I saw the female hanging at the keeper's museum, alas! in a far too far gone state of decay to remove. I took a wing feather or two, but have long since lost sight of even that little bit of evidence. I find on turning up my old journals of date that I had spoken then of seeing the female *alive*, but that was a distinct slip or error, because I clearly remember even now, in 1904, that the bird—*which twice showed itself to me on the wing within twenty feet above my head*—was a blue adult male with a distinct black moustache, and for all the world like a miniature Peregrine Falcon. I distinctly saw its back also.

A BIT OF THE BLACK-WOOD OF RANNOCH.

(*From the birch woods of Crosscraig, where the Author saw a ♂ Hobby in* 1874.)

In the north-east Mr. Milne mentions one, a female, shot at Drumtochty in 1896, which is now in the Castle.

Dr. Dewar marks it as "rare" in upper Forfar, and when doing so is probably referring to the above, or perhaps to old recorded notices of its presence in Banchory Ternan as follows: Mr. R. Gray exhibited one obtained in Forfarshire at a meeting of the Royal

Physical Society, Edinburgh (*Proc. Soc.*, vol. iv. p. 177, 1874-78). Was this a migrant, perhaps passing south from breeding haunts on the other side of the watershed? I think that extremely likely. As long ago as 1865 Mr. Thomas Craven told me and my friend Mr. C. G. Danford that Hobbies had nested there in his father's time, not many years previously. His father was one of the under-falconers employed by either John Barr or his brother William Barr. The Cravens come of an old family of falconers and gamekeepers in DEE. Tom Craven was keeper on Banchory Lodge ground when I shot and fished for salmon there in 1864 and 1865. A brother was keeper at the same time on Inchmarlo (Davidsons of), and another was keeper in Glen Dye. Tom Craven, on leaving Banchory Lodge soon after the Danfords left, went to Glen Dye, and one of the brothers is still there at the present time. Their father was keeper at Glen Dye when he first came to know the brothers Barr.

Don mentions the Hobby also as an inhabitant of the district in 1813, but spoke of it as "rather rare." Sim mentions several other specimens obtained in DEE.

Mr. R. Gray quotes my information in his *Birds of the West of Scotland* (p. 30). My informant was, as I have said, Tom Craven.

### Falco æsalon, *Tunstall*. Merlin.

Resident. Not rare, but less common than formerly. Breeds in the central and upper districts.

In 1870, Horn ranked the Merlin as being as common as the Sparrow-Hawk about the Aberfeldy and north-west portions of Perthshire. He instances four having been killed in one pole-trap in a short time, about two years previous to that date. But it has already become much scarcer generally, and this is almost without doubt due to the use of these cruel pole-traps, which, let us hope, in these later and more enlightened times, may be discontinued. No gentleman should suffer their use upon his grounds, and I wish we could see the day when shooting *tenants* also would strongly discourage them. I am sure no true-born sportsman would, if he knew of the practice.

In the north of the area Merlins were stated to be very rare by Mr. Macgregor during his long service as gamekeeper on Drumouchter, and this seems somewhat difficult to understand, because much of the ground appears to be eminently suited to their requirements as nesting haunts.

In the south-west there is still evidence of its holding a precarious tenure in some of its old and favourite haunts in 1904. Mr. W. Evans found a pair frequenting a hillside near Loch Tay in 1887 and 1902.

In the north-east Mr. Milne speaks of it as still resident, and mentions obtaining an egg in a nest on the open moor above Consbald.

By 1901 Mr. D. Dewar entered it as "much rarer in central Perthshire than formerly, but as still nesting on his ground."

In the east Dr. Dewar marks it in his list "rare—breeds"; and quotes Mr. Larnach as being aware of a pair, presumably nesting at Seton in that year (1904).

Of the south of the area very much the same account might be written. It is—still is—of general distribution, but I fear in waning numbers. The entire stoppage of the use of pole-traps may make a difference in a short time, but then a reaction would be sure to take place, as there can be no doubt though they are "game" and "noble" little Falcons, they are "*no' to be lippened tae*" if allowed to become too numerous. That wise middle course is always hard to follow, and to regulate by law or in practice.

I know that the Merlin is still well in evidence south of FORTH and CLYDE, but among the central hills of Stirlingshire it is much rarer, though I heard of a nest and eggs having been found there, not far removed from the boundaries of FORTH with TAY in 1905; and I am informed that it still nests, though much more rarely, in Fife.

### **Falco tinnunculus**, *L.* **Kestrel.**

Common. Resident. Breeds.

"*A' I ken is it's jist a haak; and a' haaks is vermin; and a' vermin maun be killed.*"

That was the dictum of a very old and very able gamekeeper, long ago servant on the Breadalbane estates, and it has been very generally believed and acted up to by nine-tenths of keepers since, until quite recently. It seems almost vain to try and point out the fallacy of it as regards the poor innocent Kestrel, as no amount of insistence appears to have the least effect with some keepers, and worse, careless landlords and careless shooting-tenants. Considerable improvement, however, has taken place in some districts, and a good deal of discussion often takes place between keepers who were at one time unanimous in their adverse views about them. Now, I will not deny that some particular Kestrel will take a young Partridge at times, because if I did, I would be going against the plain evidence of my own undoubted observations. I have seen a Kestrel seize a young Partridge on the wing more than once in my life; but I deny that it is a common sight to see; and it is quite the exception which proves the rule to the contrary, viz. that they are far fonder of "mice and voles and such small deer," and do an infinitude of good against a minimum of evil. As I have said, they have not been, however, quite so much persecuted of late years as at one time they were, and a good many reasonable gamekeepers begin to realise that they are not so punishing to young Pheasants and young game as they supposed. Nevertheless, I would like to see that their name is for ever banished from the general class of vermin, and that landowners would take up their defence.

The sentence which heads this article was enunciated, as I have said, long ago—some seventy years ago—by an ancient and very able keeper on the Breadalbane estates. He acted and spoke according to his lights, and could scarcely be blamed for performing what he believed to be his duty to his employers; but in more enlightened times we get to look upon such a dictum very much in the same view as that taken by naturalists of the somewhat similar dictum of the English gamekeeper, who after dandling a Nightjar up and down in his open palm, as if weighing its sins against its goodcomings, and in utter perplexity at the evidence shown to him by a naturalist, at last chucked it away from him with the contemptuous remark: "*Ah! but, sir, them's nasty floppin' things.*" I pity the next Nightjar that enlightened keeper came across.

Again, may I be allowed to make the remark that if Kestrels become too abundant, and their natural food becomes too scarce, it is possible that a revision of their census may have to be taken, in the interests of the game preserver and the balance of Nature. The happy medium in such affairs is not to be struck by legislation, but I must add—the Kestrel is the least harmful of all our "*haaks.*"

### [Falco vespertinus (*L.*). Red-footed Falcon.

*Obs.*—I only make mention of two "Red-footed Falcons" which are in Mr. Marshall's collection and which he received from Jersey, in order to avoid any future complications, because by far the larger portion of Mr. Marshall's cabinet has been formed of local birds, and most of these again were obtained in TAY. (See also under Chough, etc.)]

### [Falco cenchris, *Naum.* Lesser Kestrel.

*Obs.*—A statement by Mr. Wm. Duncan (*in lit.* to me, under date of 12th

October 1904) that a Lesser Kestrel, a female, was shot in Forfarshire and the eggs taken, and that they passed into the hands of a London gentleman who bought them from the person who got them, cannot be seriously entertained without more definite data, and of course must remain within square brackets. I have not in the meantime been able to trace the possession.]

### Pandion haliaëtus (*L.*). Osprey.

Old Gaelic name, *Iolair uisge*, *i.e.* "the Water Eagle."

Occasional. Very rare visitant. Has bred in TAY, but became extinct almost as soon as it had occupied a fine new site on Loch Ordie (see *infra*).

The old *Statistical Account* mentions "Eagles of three kinds" in several places.

Col. Drummond Hay spoke of the Osprey as "Once, no doubt, a denizen of all our large lochs and streams; now only an occasional visitant. It is said to have bred regularly for some time on Loch Rannoch, and probably had its eyrie on Loch Luydon" (but see further on).

Mr. Malloch, of Perth, told Col. Drummond Hay of one which had been lately killed on Loch Tay. This was no doubt the same bird which comes to be again mentioned immediately, and which dates, as will be seen, 1870.

In our chronology the above mentioned was trapped by Mr. D. Dewar at Finlarig, on Loch Tay. Mr. Dewar has described to me the method of the capture, which certainly exhibited an ingenuity worthy of a better cause, and I have no desire to repeat it here. The date of this was about 1870.

In 1876 Mr. Whittaker, during a visit to Rannoch, recorded seeing a "magnificent Osprey sitting on a dead tree. It flew off, and up the loch," we are told, "till lost to sight." This was on the 20th June 1876.

Now, I was residing at The Barracks in September and October 1874, but I could hear nothing definite regarding the presence of the Osprey anywhere in the district. It is true I have some confused facts or statements which I may refer to again.

Leading up to these, first, I wish to refer to some accounts of the Osprey in the adjoining area of ARGYLL, which, though of course outside our boundaries, nevertheless are, I think, deserving of a place in the continuity of my history of the bird in Scotland. When Buckley and I wrote our volume on ARGYLL, we purposely omitted much mention of the Osprey there; but alas! now our reason for reticence has passed away. They are no longer there, unless as rare passing migrants.

It is worthy of mention that Mr. Selby in 1833 related that two pairs were known to nest on Loch Awe (ARGYLL), but were seldom allowed even in those days to take off their young—"the young hardly ever being permitted to fly"; and he indicated that there was a decrease evident in their numbers throughout Scotland.

My friend Mr. Charles H. Alston,[1] who has resided on the shores of Loch Awe for a number of years, and has paid attention to the natural history of the surrounding districts, and had opportunities of meeting and knowing many of the keepers upon the Black Mount Forest and his neighbours around Loch Awe, tells me he has not been able to obtain any trustworthy accounts of the Osprey having ever bred upon Loch Tulla, which is just outside the TAY area, and he says: "As far as I am able to learn, they *never* bred there." He continues: "I heard it said that the Osprey was at one time in the habit of nesting on Loch na h'aclaise, but I am sorry I cannot give you the date at which they were last seen there. The last Osprey Finlay—the head-forester now on the Black Mount Deer-forest—can remember seeing, was on Loch Tulla eight years ago (he writes under date of 31st January 1903—*i.e.* say 1895). It came from the east end of the loch, and when near the west end I saw her make a sudden dive for the water, and catch a trout, and fly away with it."

In 1879 two Ospreys were seen by me when fishing on Loch Awe, and the boatman who accompanied Horn and myself told us that they had nested "on a crag last year," which he pointed out to us; but we did not place great reliance upon the statement at the time. This crag was not upon the shore of Loch Awe, but removed some distance from it. Other older relations of the Osprey in ARGYLL may be looked for in the works of Pennant, Macculloch, Thornton; and in *Rural Sports*, and *Beauties of Scotland*.

Among trustworthy accounts of the occurrences of Ospreys on the lochs of the Moor of Rannoch I have no reliable information as to their having actually nested there, though I have had several very doubtful relations of that having taken place.

Of their occurrence there I have already given Mr. Whittaker's account *supra*, and to his may be added the following:—One was shot on Loch Baa, and belonged to a Mr. Forbes, but was kept at Inveroran Hotel. Mr. Hugh MacColl, keeper at Lochbuie, either shot it or had something to do with its capture otherwise. I was informed of the fact by Mr. Scutts, taxidermist in Oban, in 1891 (see my Journals, 1891, p. 471).[1]

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[1] Brother of the late E. R. Alston.

Towards the east side, I have to record an Osprey which was shot in the Rannoch district and sent in the flesh to Mr. P. D. Malloch, of Perth, on the day it was killed. It was shot by one James Macdonald, Taignahuirn, near The Barracks, Rannoch Station (*auct.* Rev. H. A. Macpherson in his notes entered in his copy of Yarrell's *British Birds*, which were copied out for me by Mr. L. E. Hope, and which volumes are carefully preserved in the Carlisle Museum. I am indebted to the Museum authorities for kindly allowing me to have these and other extracts).

Before returning to the eastern portion of central TAY, where I have a melancholy account to put on record, I desire to complete what remains to be said about reputed nesting of Ospreys on Loch Baa and Loch Luydon.

It is true there was an Osprey's egg, said to have been taken on an island of Loch Luydon, which was offered for sale at Stevens's auction rooms, and it was described as follows: "Osprey, one egg, Argyllshire, Scotland, 1856 (taken in 1856 by Stewart M'Kinley, a keeper)."

Now, all the evidence of the fact of Ospreys ever having nested there is quite inconclusive, if not contradictory. I have the statement, but quite vague and insufficient, that the Osprey once bred at a loch in the Black Mount Deer-forest called Loch na h'Aclaise, which forms one of the chain above, and connecting with, Loch Baa and Loch Luydon. But in absence of definite data, I cannot bring myself to believe in this site for these birds. All I could myself learn about these Ospreys, or about any site in that neighbourhood—when I was stalking deer on the Moor of Rannoch in 1874—from old and young people alike, was far too vague, and too mixed and contradictory to be of any value. The oldest resident—who was our pony-man at "The Bothy" on the moor, Duncan Campbell—was clearest and most emphatic in his statement and description of the "Eagles" which had nested upon a tree on an island on Loch Luydon, which tree, as I have already stated in the article upon White-tailed Eagles, *ante*, was occupied in 1874 by a pair of Herons; and afterwards the same island was taken possession of by a colony of some fourteen or sixteen pairs of the latter birds.

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[1] Mr. Scutts was formerly with Mr. Lamont, who was taxidermist to the Duke of Fife at Mar Lodge, and who was known to the late Mr. Mitchell, the recent taxidermist of Aberdeen, and also to Mr. George Sim of that city.

As before mentioned, I visited this island and found the remains of the Heron's nest in the autumn of 1874. As my friend Mr. Chas. H. Alston, who has taken considerable trouble to get at the truth of these accounts of Ospreys nesting within the confines of the Black Mount Deer-forest, says: "This whole chain of lochs contains, for the most part, quite small trout, and would scarcely meet the requirements of a pair of Ospreys and their young, thus rendering the likelihood of their occupation still less probable." That there are large trout in Loch Luydon I am aware, but I do not think these exist in numbers sufficient to induce Ospreys to frequent any of the lochs of the entire chain, even those far up in the quiet grounds of the Black Mount sanctuary.

The Loch Baa and Loch Luydon sites were the eyries of White-tailed Eagles to the exclusion of Ospreys, as I believe to have been correctly stated both by Col. Drummond Hay and the late E. R. Alston, whether by more than one pair must, I think, remain uncertain.

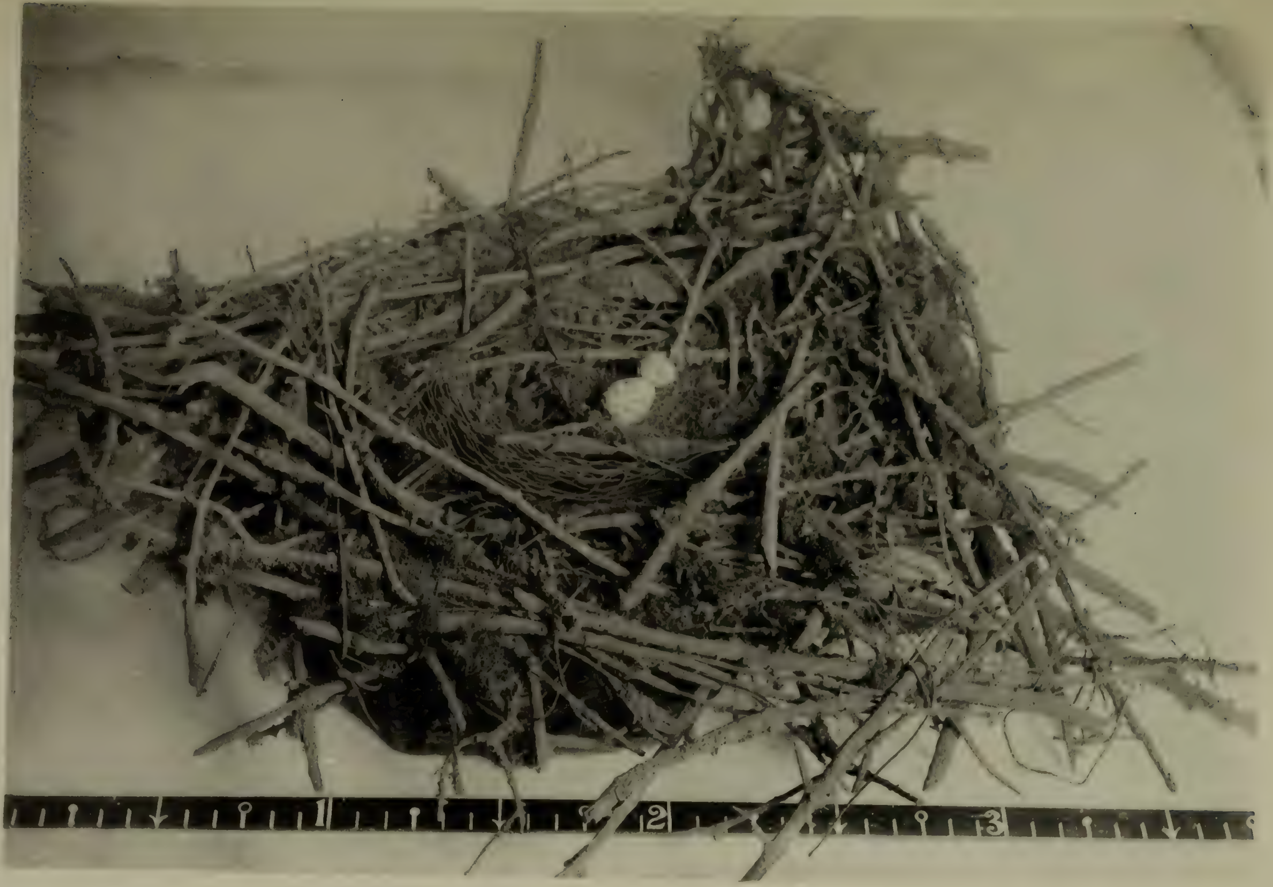
It has been currently reported that the late Mr. John Colquhoun was at one or other of these two places, in order to shoot one of the Eagles, and came there with that intention; but I am assured by my friend, Col. Allan Colquhoun, that his father only shot one Sea-Eagle in his life, and that was the one near Cape Wrath, and which I have mentioned before in my last volume. Moreover, Col. Allan Colquhoun also informed me that his father *never shot an Osprey except one upon Loch Lomond.*

I have the note that the Osprey is an occasional visitor to Fife, which I have little doubt is the case, but I cannot at present take note of any actual and definite records.

Going now to the farthest east of our present area, Mr. J. Milne informs me of one which was caught in a pole-trap on Delavaird Moss "a few years ago" (*in lit.*, 8th April 1896); and in the following year, 1897, Mr. Nichol Simpson relates that he watched an Osprey "fishing Glensaugh Loch on the 15th May 1897," when, as he describes it, "it dived to the water. The male Goose (Canada Goose) would fly direct at it and drive it off for a time" (*Annals Scot. Nat. Hist.*, 1899, p. 198); but there seems still to be, in reserve, a considerable doubt expressed as to whether this was not a large Gull.

And now comes the saddest part of my tale.

An account of the nesting of Ospreys upon Loch Ordie, not far removed from Dunkeld, in 1887, has been told by Col. Campbell in the *Scot. Nat.*, 1887-8, p. 347, which is rather sickening to read.



OSPREY'S NEST FROM LOCH ORDIE, NOW PLACED IN THE PERTH MUSEUM.

"The nest is now in the possession of the Perthshire Society." Eheu! The tale was told, too, by Col. Drummond Hay (*Perth. Soc. Trans.*, vol. i. p. 96). I have also an account of the removal of the nest by an onlooker—my friend, Col. R. G. Wardlaw Ramsay—who witnessed the cutting down of the tree. After that, I learned that "Orders had been given by Her Grace—the Dowager-Duchess of Atholl—not to molest Ospreys in the Dunbergh woods" (Atholl Macgregor, Esq., *in lit.*). This order was given out in 1892, according to my informant. Alas! it came far *too late, too late*!

In a letter from the late Dr. Buchanan White, he deplored the facts and the slaughter of the female bird the year before. But he strenuously defended the society from participation in the killing of the bird. I quote his letter fully here: "25th Sept. 1903.—I fear," he says, "that ornithologists may regard this nest as a shameful possession for a museum; but the killing of the Osprey was not our doing (witness the fact that the *owners of the bird* will not part with it), and as the nest would have perished, it was very good of Mr. Atholl Macgregor to secure it for the museum"; and Dr. Buchanan White adds: "What a noble addition to the living fauna of Perthshire it would have been if these Loch Ordie Ospreys had been protected." The bird and two eggs are, I have always understood, in the castle at Blair Atholl, or in the collection formed by the Dowager-Duchess of Atholl.

Now Col. Wardlaw Ramsay (who was present, as I have said, along with Mr. Atholl Macgregor at the "cutting out" of the tree, etc.), writing me from memory, says: "And along with the Duchess of Atholl's gamekeepers we removed the Osprey's nest you refer to. It was situated in the cup formed by the top of the tall spruce having been broken off. The tree was close to the loch. The nest was very difficult to get hold of; *indeed the only way was to cut the tree down.* The nest was, of course, much injured by the fall, but was successfully restored as you see it in the Perth Museum." Col. Wardlaw Ramsay continues: "I understood from the keeper that he *had shot the hen in the previous summer and taken the eggs.* But evidently one egg had been overlooked; for, when the tree fell, an addled egg fell with it." Oh, dear! oh, dear! All I can now say is, "The pity of it, *the pity of it!*"

Yet one more link in this chain of destruction. I find that in 1887—*i.e.* the year after the hen bird of this Loch Ordie eyrie had been slain—an Osprey was sent by Charles Christie, Dunkeld House, Dunkeld, entered under date of 11th June 1887, to MacLeay for preservation. Once more—*the pity of it!* Thus can be so easily traced the steps in this *so pitiful tale.* Who can doubt, unless blinded by utter and sheer ignorance, that, if the hen had not been shot, and after that, if the tree, so admirably suited to the Ospreys' requirements, had not been ruthlessly destroyed, and after that again if this bird had not been ruthlessly murdered, that Loch Ordie would still have maintained its beautiful and harmless birds? I cannot write down this mournful history without "almost tears." We here, with all our boasted civilisation, are one half-century behind in such affairs—and may those feel it who have been to blame!

To carry still farther this tale of woe, another was slain on the 31st of August 1887, which was, with scarcely a shadow of doubt, one of the pair of yet another more northern locality—another eyrie depleted.

There was another, as I have before told, which was killed at Loch an Eilean, 3rd April 1888; but this one was not killed by human agency (at least not directly!), but was killed in battle with another of its own family—probably the surviving bird of the Loch Ordie eyrie—when fighting for a mate. Finally, I find the Loch Ordie Osprey entered in a list of rarities which have occurred on the Atholl estates during the past forty years. I am indebted to His Grace the present Duke for these lists; and I feel sure that if the Ospreys ever returned again to Loch Ordie he would look better after their preservation—at least, let us hope so.

If that could be so, even yet I would not despair of the successful rehabilitation of our Ospreys' older and later eyries. If some sufficient strength of mind, *of men who could protect*, would be displayed, and if—to quote a writer on another theme, but with much parallel significance—"If such matters were seized upon by an intelligent and effective executive, which sets to work at once instead of wasting time on useless discussions, as for the most part we have been doing in British possessions for the last number of years, something might be done" yet to save the Ospreys of Scotland.

The passage within quotation marks refers to the extirpation of *Culex* at Ismailia, as reported in *Nature* of July 16, 1903 (*q.v.*). It might well apply to the conservation of our Ospreys.[1]

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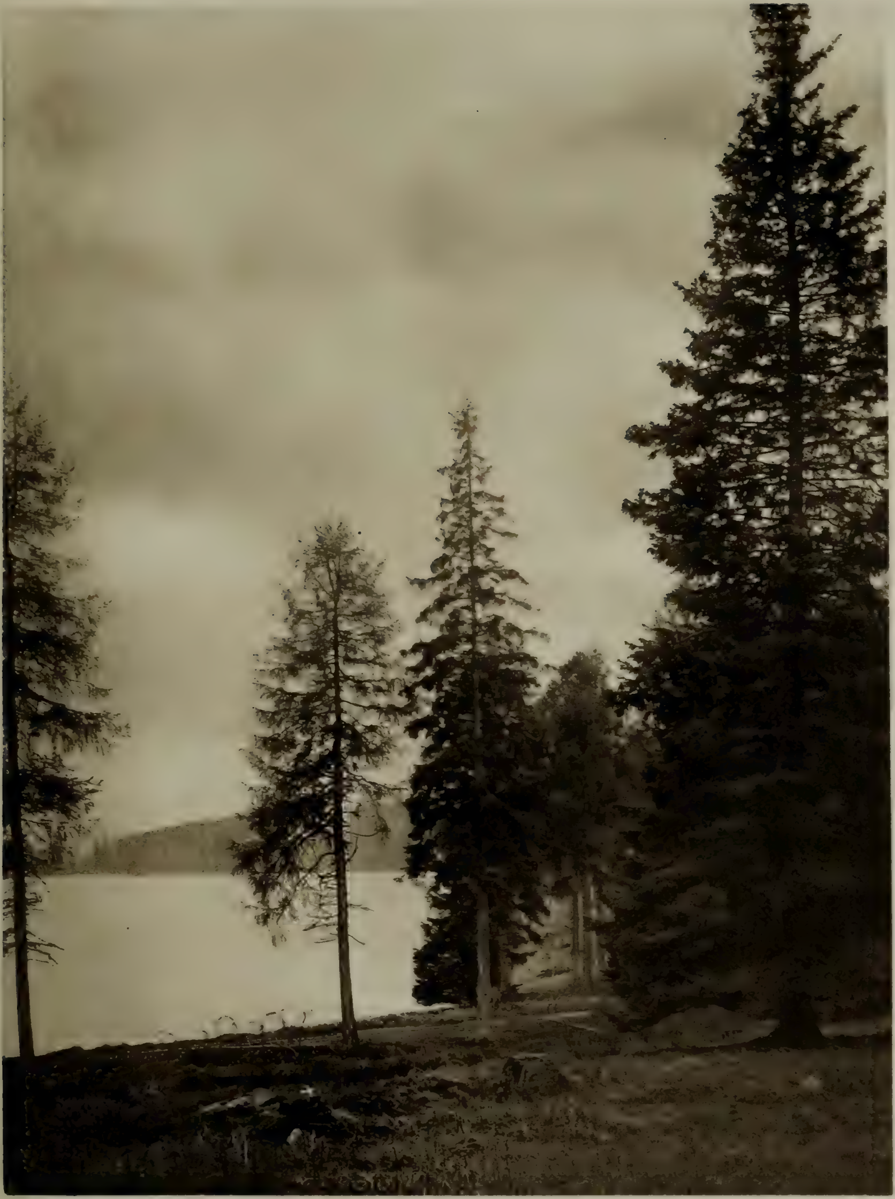
[1] To further illustrate what I have in my mind. There is a well-known evasion in many public offices and trusts, and "unbusiness-like business," when a difficult point in discussion arises. Some more than usually obfuscated councillor gets up on his hind legs and says: "Mr. Chairman and gentlemen, I beg to propose that we appoint a committee to consider this matter." Joyfully, some one else "seconds" this flash of intellect, and so things are shelved, to the intense relief of the whole body of the parties present.



EXTINCT OSPREY SITE ON LOCH ORDIE.

STUMP OF SPRUCE-FIR MARKED WITH WHITE X.

Meanwhile, our Ospreys are upon the verge of despair ; they are in anticipation of rapid decadence and final extinction. The history of this Loch Ordie nest, along with the evident relationship of its birds with those of Spey and Loch an Eilean, as intelligent readers can hardly fail to realise who read both this account and that which we have before given in our previous volume on MORAY—*i.e.* so far as that has been written—I say that the history of this Loch Ordie nest and its birds can hardly fail still to shadow forth a lingering hope that all our resources of civilisation are not yet exhausted. With scarcely a reasonable doubt, these Loch Ordie birds were offshoots from Loch an Eilean parentage, and Loch Ordie and its broken-topped spruce-tree had caught the keen vision of the surviving autumn and spring migrants passing over twice- (or more frequently-) travelled air-paths. Surely it is no *marvellous stretch of my imagination* to say that the desperate fight which took place at Loch an Eilean was between the old male of that eyrie and probably one of his own surviving offspring which had escaped all previous endeavours to annihilate him both at home and abroad, and had run the gauntlets of murderous means both in Scotland and England, only to perish at last. I give the fact, at all events, that there have been no Ospreys at Loch an Eilean either in 1904 or in 1903. And I also give another, that only one Osprey came back to the Lochiel's eyrie in 1904. Let us pray that Lochiel will not cut down *that* tree, or give it to *any museum in the wide, wide world.* And let me add : May any transgressor who may be tempted by "filthy lucre" to do that same be "blown up sky-high"; and if this passage happens to meet his indignant eye, he may read it literally if he likes.

Meantime, I conclude another chapter of sorrows in the history of the Ospreys of Scotland.

I have already mentioned that I gave myself the melancholy pleasure of personally visiting this devastated site of these persecuted species in 1905, accompanied by Mr. Rodger of the Perth Museum, and guided to the spot by the keeper by whom the bird was shot. I reproduce one of the photographs of the site, showing the remaining stump of the tree that was cut down.

Millais informs me that the Osprey still appears occasionally on passage in autumn, and he adds : " I watched two for a long time trying to catch a grilse near Dunkeld. I have seen it on two occasions on Loch Leven (FORTH). Malloch has a lovely specimen, killed on Tay recently. I believe it is one of the Loch an Eilean pair, as it is a perfect old bird, and one of the pair (of the Loch an Eilean birds) was killed in 1903, and did not return to Loch an Eilean in 1904." Mr. Millais also refers to the Loch Ordie birds, and adds: "Atholl Macgregor knows all about it." "They used to breed also at one of the other lochs," not however within the present area.

Millais also informs me that he saw an Osprey's remains hanging up on a keeper's hoarding on Kinnaird about the years 1883 or 1884.

I have been informed that the Osprey is an occasional visitor to the north of Fife, but I cannot say that I have succeeded in obtaining any actual records to date of going to press.

*Note.*—As an appropriate conclusion to this article on the Ospreys of TAY and of Scotland, I reproduce here a photograph of an Osprey's nest built upon a cart-wheel which had been firmly fixed upon the summit of a high pole, and which shows most suggestively how some of our Highland lairds who possess Osprey-haunted areas might encourage the return of these harmless and ornamental raptors. I desire to pointedly express my grateful thanks to Mr. Reginald Heber Howe, of Concord, Mass., U.S.A., for putting it in my power to give this illustration; and I have also to thank my good friend Mr. William Brewster, of Cambridge, Mass., for a series of other photographs of Ospreys' nests on telegraph and telephone poles, in close proximity to houses, all as at the present day existing in Long Island, New York, etc.

In the same way, in Holland, tall posts are erected with cart-wheels on top for the accommodation of the almost domesticated Storks —of which facts I also possess evidence in photographs.

Perhaps Ospreys might even yet (A.D. 1906) be induced to return to Loch Ordie if some such inducement were held out to them, replacing the spruce-tree so ruthlessly destroyed. May I be allowed to suggest that the hint be taken?

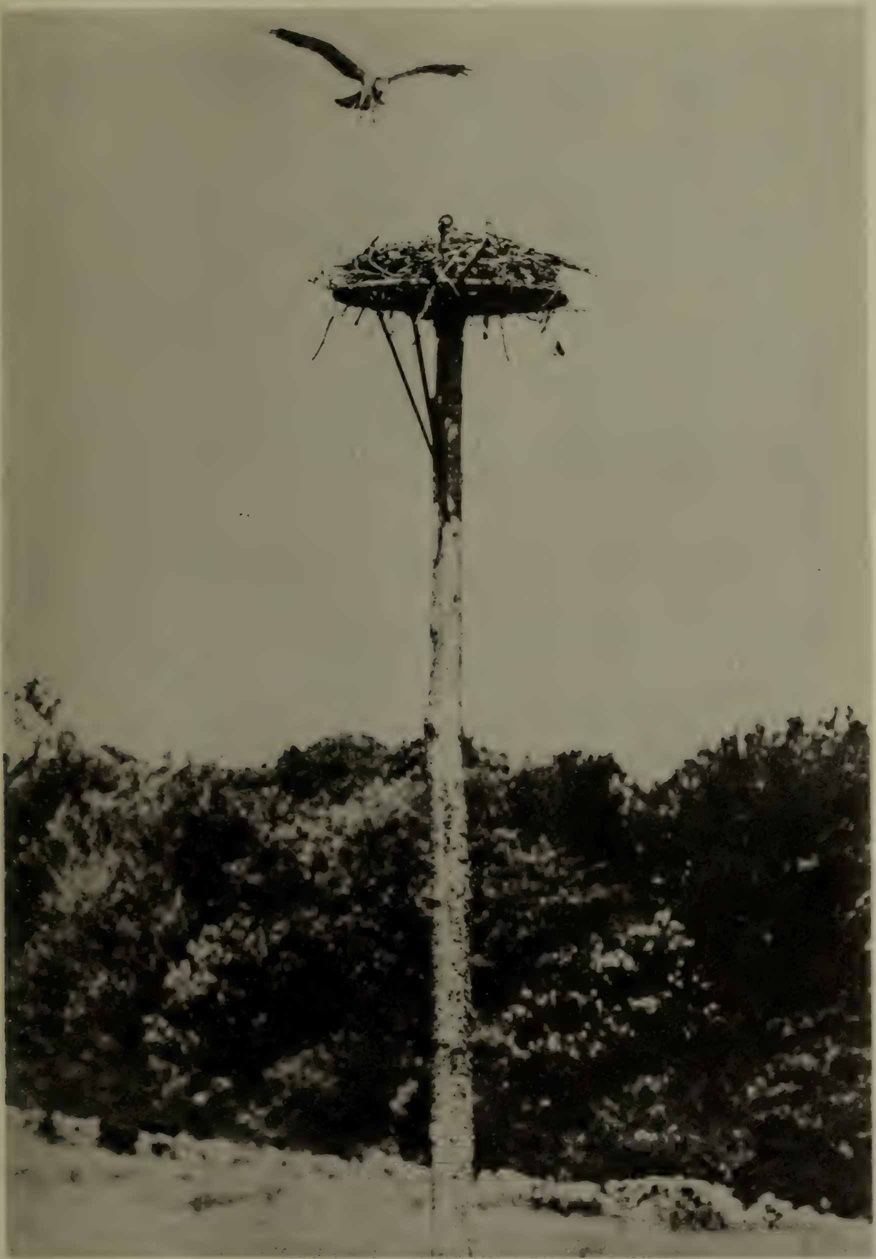
## Order **STEGANOPODES.**

### Family **PELECANIDÆ.**

### Phalacrocorax carbo (*L.*). Common Cormorant.

The Great Cormorant was known to Don as frequenting the Loch of Forfar, and he relates how individuals of the species sat upon the stakes driven into the loch connected with the dragging of marl, and that for hours at a time.

These birds are nowhere numerous as compared with other parts



OSPREY'S NEST ON CART-WHEEL, LONG ISLAND, NEW YORK, U.S.A.

TO SHOW HOW OSPREYS ARE TREATED IN AMERICA, AS COMPARED WITH THEIR TREATMENT IN BRITAIN.

By permission of Mr. Reginald Hebar Howe, of Concord, Mass., U.S.A.

of Scotland, but fly up the Tay as far as Perth, or as far as the tide goes, and they are known also to reach even up the river as far as Loch Tay.

From the north-east Mr. J. Milne writes that they are resident, quoting Col. Drummond Hay, but I cannot say that I am aware of any place where they are actually known to breed.

These birds are not very often seen along the valley of the Tay except when on wing, but Col. Duthie informs me of his having seen *one* on a stone near Ballathie in September.

They are also seen on Loch Tummell, and have been reported to breed there on the tower on the small island. But of this fact I require more explicit information than I at present possess, and consider it a very doubtful statement.

Nor am I aware of any nesting place upon the coast, though there are one or two resting places between Arbroath and Montrose.

### **Phalacrocorax graculus (*L.*). Shag.**

Visitant only to the coast.

So far as I am able to ascertain, the above constitutes its value in the fauna of TAY and Strathmore just now.

Col. Drummond Hay had no news of it on the Tay in 1880. But Mr. D. Dewar did shoot one upon Loch Tay in February 1896—the only one he had ever got (*in. lit.*, 27th November 1902). It was an immature specimen. I am aware that the Shag is much less frequently met with on inland waters than its big relation the Cormorant.

In the north-east Mr. Milne designates this bird as "a visitor to the coast," and gives a reference to the *Black Book of Kincardineshire* (*q.v.*).

Dr. Dewar gives similar evidence from the Forfar coast.

I am not aware of any other occurrences of this bird inland except the one given above. And indeed it very rarely visits fresh water at all. And furthermore, as noted by Millais, the comparatively few that visit the estuaries of the Eden and Tay are mostly, if not entirely, immature birds. Millais says: "I have never seen an old bird there; always immature specimens."

Similarly, on the coast of Fife it is only spoken of as a winter visitor.

### Sula bassana (*L.*). Gannet.

Only a seasonal visitant along shore, but seen at all times of year by the lighthouse-keepers at the Bell Rock in more or less quantities.[1] Common; fishing off the mouth of the Tay, and coming up as far as the Dundee Bridge (*auct.* Mr. Nelson, a correspondent of the late Mr. R. Gray). This same party supplied Mr. Marshall, of Stanley, with many specimens (see Mr. Marshall's catalogue, kindly supplied to me for purposes of this book).

In the north-east Mr. Milne also mentions a wounded Gannet caught at the Mains of Fordoun.

Millais affirms that Gannets seldom ascend the Tay above the Tayport Lighthouse. But occasionally a storm-driven example is met with at some inland locality. Thus, as I am informed by Mr. Frost, an immature Gannet was shot on Wednesday, the 20th September 1905, about 1½ miles higher up the glen from Connachan Lodge, near Crieff. It was resting amongst rushes on a small streamlet about sixty yards from the Shaggie Burn. It was found after a storm. The bird was sent to Mr. Kirke, of Glasgow, for preservation (W. E. Frost, Esq., *in lit.*, 15th December 1905).

## Order **HERODIONES.**

### Family **ARDEIDÆ.**

### Ardea cinerea, *L.* Common Heron.

Old Gaelic name, *Corra riathach* (old *Statistical Account*, xvii. p. 251). Common resident. Breeds.

The old *Statistical Account* has several references to old Heronries, thus: "Herons used to hatch in numbers in the trees of the island at Clunie Castle, but not since the late reparation of the Castle" (*op. cit.*, vol. xi. p. 235); and in the Agricultural Survey a Heronry is made mention of at Inglismaldie, Forfarshire, in 1793.

Also in the north-east Mr. Milne speaks of Heronries "at Arbuthnot, and Fetteresso Woods, to his knowledge since at least 1868, when he got eggs from the latter locality." There is little doubt these Heronries are of older date. Dr. Dewar, Arbroath, also speaks of the same Heronries, and of another at Kinnaird, and adds that he "knows of none any nearer to Arbroath at the date of 1901." Six Herons were seen sitting on one tree at Edgelaw Reservoir, Arniston, Forfar, by the members of the Glasgow Natural History

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[1] *Fide* Mr. J. M. Campbell, lighthouse-keeper at Bell Rock, author of *Notes on the Natural History of the Bell Rock*, p. 35. Edin. 1904.

Society during an excursion they made there in 1901. I merely mention this, not as of great interest at present, but in case at some future time there may be a more permanent occupation of the site. The excursion was undertaken on 23rd September 1901 (vide *Proc. Nat. Hist. Soc. Glas.*, 1903, p. 236).

In the north of our area there is an early notice by Yarrell (*British Birds*, 1st edition, vol. ii. p. 438), under "Cranes." He tells us that "Cranes were given to King James V. of Scotland, and the Queen-Mother, on the banks of Lochaine in Glen Tilt." These "Cranes" were most assuredly Herons. Even at the present day, Herons are often spoken of as "Crans" or Cranes—pronouncing the *a* short. It is not difficult, therefore, to understand how Yarrell came to be mistaken by the local use of the word as in old charters.

Other Heronries are in Strathearn and in Atholl, "the latter," says Col. Drummond Hay, "in an old line of beeches on the Hill of Tulloch—since, however, cut down; and they shifted to some old Scots firs, but not in such numbers as formerly."

Mr. D. Dewar relates that there used to be a Heronry at Taymouth, but the birds were destroyed as being destructive to fish. He once saw a Sparrow-Hawk strike down a Heron into Loch Tay.

In the south-west a few pairs were left only of a larger colony at Loch Dochart, when Gray wrote his *Birds of the West of Scotland*, and I received a clutch of eggs from there a few years afterwards.

I have not been able to ascertain what Heronries, if any, exist along the sides of Loch Earn; but Godfrey told me he heard of none, and only saw one solitary bird at Lochearnhead.

In our Fife-Tay portion of the area, as I am informed by Col. H. W. Feilden, and according to Mr. James Keddie's information, "Herons nested in Airdrie Wood, not far from Crail, as late as 1842"; and Col. Feilden considers that it must have been at a later date than that before they were dispersed, "because, now and then Herons fished in the little burn that runs through the garden and past the house of Cambo as late as 1847; and when I asked my father whence they came, he told me 'from Airdrie Wood,' where several pairs nested."

We are told, however, by Mr. J. E. Harting in his list of Heronries (*Zool.*, 1872, p. 3268), that this Heronry at Kinnaird had by that time become extinct "in consequence of the old spruce-trees having been cut down," but the exact date is not supplied. He also mentions the Fetteresso and the Inglismaldie Heronries (*loc. cit.*). The year 1865 is my latest positive and recorded date of their continuance at Fetteresso, but I may take it that Mr. Milne gives credit still to their presence in 1900 in his list.

In 1857 a single nest, according to Mr. Harting, occupied the King's Seat at Dunkeld; and Mr. Harting put the colony at Blair Castle at from five to seven pairs in 1872.

At Loch Dochart, or, more correctly, on a peninsula of land which stretches out opposite Loch Dochart House at the lower end of Loch Iobhair—which constitutes an extension of Loch Dochart lower down the river Dochart—the Heronry was becoming too populous, and some thinning of the numbers of the colony became necessary. This information was given to me by Mr. Symington Grieve; but he guards the statement by the added one: "I cannot say whether this is true or not . . . but they are not so numerous as formerly." He continues: "About twelve years ago I counted twenty-six nests, but I could not be sure that all were new nests, and occupied. The birds build so near the tops of the pine-trees, it is difficult, if not impossible, to get close to the nests, as the trees are old and very high." Mr. Symington Grieve states further that he had heard a story that an old pair of Herons built sometimes on the trees of the island on Loch Dochart, and also near the foot of the small glen behind the shepherd's house at the foot of Loch Dochart on the north-west side, but I have never seen any nests there, so I cannot confirm the statement.

That there has been a diminution of the numbers of the Herons nesting at this place, I have the evidence from Mrs. Place, of Glendochart, herself that "We have still the Heronry, and this year (1905) it has seven nests in it. It is on the wooded peninsula that juts out from our hay-field and loch-shore. No one is allowed to land there: our people have orders to turn any one away who comes there with a boat; but if any one wants to see the Herons' nests, and comes and asks to do so at the house, our man would be pleased to go with them and show them where the nests are." Mrs. Place adds: "It is easy to know at present (June 18, 1905) by the noise, but that will be over soon, as the young birds are getting away," etc.

The Rev. Mr. M'Connochie informs me that there is "a small Heronry in fir-trees at Monteathmount Moor—probably eight or ten pairs—and increasing. A good many birds come to the streams."

**[Ardea purpurea, *L.* Purple Heron.**

Rare occasional visitant. Imperfect evidence of its occurrence within the area.

A specimen of this rare visitor is said to be in the Castle at Drumtochty which was shot in January 1895, and is given on the authority of Mr. A. N. Simpson, quoting Mr. James Milne; but Mr. Milne, who has seen this collection, has no remembrance ("memory does not confirm the identification of this special bird"), and Mr. Milne's list does not contain any reference to it, nor do I find any other reference to it anywhere except the above by Mr. Simpson in the *Annals Scot. Nat. Hist.* (1899, p. 198, *q.v.*).

I am obliged, therefore, according to rule, to retain it in square brackets. Perhaps these may yet be removed, but meanwhile they must stand due to imperfection of record.]

**[Nycticorax griseus (*L.*). Night-Heron.**

I have the note by Mr. W. Berwick, "Irregular visitor," but without further information to date (17th May 1906).]

**Botaurus stellaris (*L.*). Bittern.**

Once presumably a common species, and resident. Now rare, and only occasionally met with; and Col. Drummond Hay very naturally puts down as the reason for its disappearance "the reclamation of land and drainage of old haunts and vast areas of swamps."

Don even in 1813 spoke of it as only of occasional appearance, and he gives some instances, but considered it "a rare bird." One was shot in the White Mire, near Forfar, in 1789.

In 1862 I find that Mr. Small, of Edinburgh, received one for preservation "from Perthshire" on 28th October (Registers).

Col. Drummond Hay records a very fine example shot on the Guller Hole fishings on the Tay, immediately below Mugdrum House, in the spring of the year—fifteen years previous to 1879—say of the season 1863-4. Col. Drummond Hay was informed of the fact by Mr. Cuthbert, the then tenant of the place, and adds: "Probably one of a large flight mentioned by Mr. Gould as reaching our shores that winter, 'when,' quoting Mr. Gould, 'examples were killed all over the country, from the extreme west of Cornwall to the northernmost part of Scotland.'" I have not had the opportunity of seeing or consulting Mr. Gould's great work.

Another fine specimen was killed in the neighbourhood of Blairgowrie, and is in the collection in the Perth Museum, but the date is not attainable.

One is entered in the Montrose Museum, dated "Bogmuir (D. Lyall, Esq., of Gullery, 1876)," and a second from Fettercairn, the latter with no date. There is one also in the Museum at St. Andrews with the date "February 1865," but with no locality mentioned.

At the date of 1891 Mr. Malloch told the late Rev. H. A. Macpherson that he only once mounted a Perthshire specimen. This one may possibly be the same as is incidentally made mention of by Mr. Malloch (*in. lit.* to the Rev. Mr. Macpherson under date of 17th May 1901) as having occurred near Abercairney, Crieff. "Much darker in the plumage," says Mr. Malloch, "than two which I purchased from a dealer in Bristol." No date is given. No doubt the dealer was Mr. Marsden, of Bristol. (Was this Abercairney bird perhaps a specimen of the closely allied American Bittern ?)

Mr. D. Dewar merely speaks of the Bittern as a "very rare bird" in Strathtay.

Mr. R. N. Kerr read a paper upon the Bittern in Perthshire and neighbouring counties at the annual meeting of the East of Scotland Union of Scientific Societies in 1887; but this paper does not appear to have been printed or circulated, and the title *only* is given in the *Proceedings* of that Union (*q.v.* p. 7, 1896).

In the north-east Mr. Milne merely quotes Col. Drummond Hay, and says: "Occasional, and only at long intervals."

Mr. N. Simpson only quotes Col. Drummond Hay, but adds: "I saw a stuffed specimen in a gamekeeper's house some years ago near Marykirk." This may be the one mentioned by Col. Drummond Hay as having been shot in 1867 at Bogmuir, near Laurencekirk (*Annals Scot. Nat. Hist.*, 1899, p. 198).

The Rev. Mr. M'Connochie mentions one killed by a gentleman in a neighbouring marsh "some years ago." (Mr. M'Connochie's note of this to me dates July 1905.) This may perhaps be the same as one of those already mentioned.

## Family **IBIDIDÆ.**

### Plegadis falcinellus (*L.*). Glossy Ibis.

Rare. Occasional visitant. "Very occ. and at rare intervals." Col. Drummond Hay had it entered as above, and has been so quoted since by my correspondents.

Since then one was shot near Dunning, on the Earn, Perthshire, on 18th September (*Trans. and Proc. Perth. Soc. Nat. Science*, 1903-4, vol. iv. p. vi.), erroneously given as "18th October" in *Annals Scot. Nat. Hist.* (1904, p. 211).

*Obs.*—The only other which has occurred at all near our border on the north is one said to have been obtained near Banchory, Kincardineshire (DEE), about 1844; but though it was mentioned to Mr. Gray that this bird was presented to Mr. Macgillivray by Mr. Craibe Angus, there is no notice taken of it by Macgillivray.

And the only one I have note of near our borders on the south is one at Kilconquhar (FORTH) in September 1842. (I do not speak of Central Scotland localities here.)

## Order **ANSERES.**

### Family **ANATIDÆ.**

### [Chenalopex ægyptiaca (*Gmel.*). Egyptian Goose.

Rare visitant, or otherwise, escapes of introduced birds.

One shot upon Montrose Basin in December 1874 was, with little doubt, only an escape, and that probably from localities not far removed—*e.g.* private ponds in Forfar- and Kincardine-shires.

There is one also in the Perth Museum shot on the Tay opposite Port Allen (*Trans. and Proc. Perth. Soc. Nat. Science*, 1903-4, p. 19 of vol. xi.)].

### Anser cinereus, *Meyer.* Grey Lag Goose.

Old Gaelic name, *Muirgeadh* (old *Statistical Account*, vol. xvii. p. 19).

Occasional along the lands near the coast-line, but not of regular appearance.

Included by Col. Drummond Hay as one of four species of Grey Geese which frequent the Carse of Gowrie, and as seen "in pretty considerable flocks." I suspect Col. Drummond Hay when giving utterance to the last remark was not really referring to the numbers of Grey Lags, but to the numbers of Grey Geese in general.

Mr. W. A. Brown, who used to "punt" a good deal upon the estuary of Tay, got a good many of these birds at times. He got two about the 10th January 1873 (*in lit.*).

Also, on the Tay near Errol, Mr. J. Nelson got one on 12th February 1886, which, as with many other specimens, he sent to Mr. Marshall, of Stanley, and in whose collection it now is.

In 1903 a male was shot at Ballinluig, and was sent to Mr. Malloch in the flesh by Mr. James Grant (Registers).

Three were shot near Newburgh-on-Tay on 18th October 1885 (*auct.* Mr. W. Evans, and that gentleman saw them, as well as sixteen others in a flock, upon an island out from Newburgh). The latter were seen on the 26th December 1886, and Mr. Evans remarks upon the difference of the cries of this species and of the Pink-footed Goose.

All the Grey Geese frequent Loch Leven (FORTH), more or less, but I am not aware that the Bean and Grey Lag are often found at other resorts in TAY.

Having asked Millais for his experiences of this species as a frequenter of TAY, he informs me that he found it "abundant in winter in the Firth of Tay and on the Carse of Gowrie between Glencarse and Inchture; and I have killed a few there." He then refers me to his volume on *Wildfowler in Scotland* for a story of a white Grey Lag.

Numbers of Grey Geese frequent Montrose Basin.

It is a common custom to decoy Grey Lag Geese by setting up boards formed in the shape of geese, and painted, or even more elaborately planned dummies, in certain pastures frequented by the birds. The necks of these decoy-boards are often formed with a hinge, thus making them movable. In this past season (1905) I heard of no fewer than sixteen having been shot in one week on an estate near Dundee, allured by these decoys. Grey Lag Geese come freely to these decoys, but Pink-footed and most other Grey Geese shy them when within some seventy or eighty yards, whether by sense of sight or scent (absence of it?), or both combined, is a question. Mr. W. Berry writes me some account of the process. He speaks of the Grey Lag Geese as "utterly unsophisticated as compared with the Pink-foots." He goes on to say: "The decoys were beautifully painted, and looked splendid in the grey dawn. The flocks came to them like Wood-Pigeons, and approached to within about eighty yards. Then they took a turn necessary to enable them to alight with their heads in the same direction; and lo! the 'lean kine of Pharaoh' were not in it; for scarcely, with these hungry ones, did the Kingdom of Fife seem big enough for these Geese afterwards They went off, every throat distended with yells." Mr. Berry believes nothing can be more effective than these decoys if it be desired to banish Pink-foots utterly. Further, he believes that the unusual numbers of Pink-foots seen on the south side of the Tay estuary in the autumn of 1905 is greatly due to the use of the said decoys at other places further north. The almost ridiculous tameness of the Grey Lags he has likewise witnessed—much more like tame barnyard birds than Wild Geese. He adds that "White-fronted Geese are almost equally idiotic," but he has long since cast aside his "*beautifully painted, galvanised geese.*"

**Anser segetum** (*Gmel.*). **Bean Goose.**

By no means so common as had been supposed for many years. Indeed, it may really be marked RARE.

Stated to have been formerly more abundant, but of late years has almost disappeared. The cause is supposed to be the former haunts having been built over, and covered with the houses of the wealthier merchants of Dundee, as well as the increase of traffic on the tidal Tay. This can easily be credited, as I know well how conservative these birds are, and how they cling to and regularly frequent old patches of ground in the western isles—a habit indeed common to several other species of Geese in the Hebrides and elsewhere. The above-recorded subsequent scarcity is interesting, if correct, and we must, I consider, credit such experienced gunners and wild-fowl shooters for its being so. Still, I must draw attention to the fact that for many years such experienced ornithologists as Macgillivray, Jardine, and others, down to quite a recent date, gave credit to the Bean Goose as the commonest Goose of our east coasts. Whereas the next species which comes to be spoken of was discovered to be the commonest, and the Bean the rarest, of the Grey Geese frequenting our shores.

The Bean Goose frequents Loch Leven along with others of the Grey Geese, but seldom in great numbers, and feeding and mixing along with Pink-footed Geese on the feeding grounds of the islands.

Millais—than whom few can be said to have greater knowledge of the wild-fowl of Tay and Eden and the east coast of Scotland generally among trained and experienced ornithologists—considers the Bean Goose as "a rare species," and he adds: "I have only seen three specimens within the Perthshire area. One of these I bought in a shop in Dundee, which had been killed the previous day at Glencarse. The second I killed myself on Loch Leven (FORTH), and the third has escaped any particulars in my notes."

**Anser brachyrhynchus**, *Baill.* **Pink-footed Goose.**

Abundant. Regular visitant in autumn and winter. This is the commonest of our Grey Geese which comes to us in migration and remains in numbers to pass the winter. But as indicated above under the last-mentioned species, one may run through many older accounts and almost invariably find that the Pink-footed, except when handled, was mistaken for the Bean. I only discovered the fact myself quite suddenly. Upon our Stirlingshire coast (FORTH), about the year 1875, or thereby, I shot two Geese right and left as they passed over my head, *they having separated from a very large "gaggle."* I was partly concealed in a Carse ditch, up to my knees in mud and water, when they came over. I killed the first one stone dead with No. 5 shot, and the second plunged into the mud of the foreshore. I was so excited because I thought I had got such a *rare bird as a Pink-footed Goose*, that leaving the dead one I plunged into the mud-flat and came the inevitable "cropper" flat on my face. I got my second Goose, however, but I have ever since known better the difference between the Bean and the Pink-foot. Both of those I shot were of the latter species. At the farm I got scraped down, and the good people there did their best to make me presentable; but I very much doubt if they did, if I might judge by the remarks of other *kind* critics whom I met before I reached the shelter of my own house at home.

Great disparities in weights occur among individuals of the different species *inter se*; and I feel quite convinced that these disparities are excellent indications of ages of the birds, as I have found a series of weights accorded well with the immature and adult plumages, as I think I once pointed out with regard to specimens I examined of other species in, I think, the *Field* newspaper. (See under White-fronted Goose.)

Pink-footed Geese frequent Loch Leven regularly, and in considerable numbers, and Grey Lag Geese also in smaller quantities. But they are all of more or less rarity at Eden Mouth.

Millais also designates the Pink-footed Goose as "the most abundant species on the east coast of Scotland." He says: "I have seen big flocks both in the Carse of Gowrie and coming in from the sea over Tents Muir. These last-named feed in the open fields near Tayport. (For accounts of Pink-foots arriving and feeding formations, see my *Wildfowler in Scotland.*)"

Mr. W. A. Brown found that the lightest and smallest weighed only 4½ lbs., and the heaviest and largest weighed as much as 8½ lbs. This was in the same season of 1872-3, when he secured a considerable bag of Geese on the Tay and Eden estuaries.

It is not necessary to speak fully of occurrences near the coast, but I may mention that Mr. D. Dewar only once obtained a specimen upon Loch Tay—the only one he had ever seen. This was in February 1901.

Mr. W. Berry, Tayfield, Fife, gives the date of their earliest appearance there—*i.e.* Tents Muir—as about September 29th in 1892 (*Annals Scot. Nat. Hist.*, 1893, p. 158).

In 1897 an unusual occurrence as regards date is recorded by Mr. A. H. Meiklejohn, St. Andrews. He saw "a small flock, about twenty in number, of 'Wild Geese' fly over the Links at St. Andrews, going in an easterly direction." The species was undetermined, but supposed to be of this species, "which is common here in winter" (*Zool.*, 1st July 1897, p. 363).

Albinos of the Pink-footed Goose were obtained by Mr. W. A. Brown, and one was sent to me for identification. The albinism only extended to the "nail" and toes. A subsequent examination by Dr. Bowdler Sharpe, to whom a specimen was sent—the same I had seen—resulted in his verification of my identification. I think Mr. Brown shot either two or three out of a party, and reported one or two more in the same lot.

Large flocks used to remain in the fields of Cairnton and Pitarrow as a resting place in autumn and spring (J. Milne's list). By a slip he had assigned this note to the Bean Goose, which, it is now scarcely necessary to point out, is not the Goose which usually frequents inland pastures.

### [*Obs.*—Chen hyperboreus (*Pall.*). Snow-Goose.

"Four Snow-Geese," so Millais makes note, "arrived at Glencorse in Oct. 1889 and stayed for some weeks, feeding near, but apart from the Greylags. O. MacInnes tried hard to obtain one of them for me but failed to do so. I have little doubt they belonged to the above-named species."]

### Anser albifrons (*Scop.*). White-fronted Goose.

Said to be rarer by 1880 than thirty or forty years ago—say than in 1850 or 1840.

One was shot in March 1878 at Inchbrackie by P. J. F. Graeme, who still possesses it. One was seen in the flesh at Newburgh by Mr. W. Evans; weight about 4 or 5 lbs.

It is marked "very rare; winter visitant," on the authority of Dr. Dewar.

An examination of several White-fronted Geese sent to me from Tiree and the Outer Hebrides a year or two ago, convinced me that the white appearing at the base of the under mandible was a decided indication of immaturity. This white on the under mandible disappears as the birds approach maturity, but remains longer on the base of the upper mandible. This is coincident with other changes of plumage. Thus the white on the under mandible is coincident with a mottled breast in a young bird, and also with the lighter weight. The blacker the breast and the less white on the base of the bill and absence of white on the lower mandible, the greater is the indication of approaching maturity and fully adult stages.

### Bernicla leucopsis (*Bechst.*). Bernicle Goose.

Rare. Irregular or occasional.

Col. Drummond Hay does not include it in his lists up to 1880, but I have myself obtained it from Tents Muir shore, shot by my old friend Mr. J. R. W. Cook; a few others have been obtained or recorded by Mr. Walker, also near St. Andrews; and there is one in the Museum there, shot in St. Andrews Bay, October 1870.

It is considered as of doubtful occurrence on the Forfar coast by Dr. Dewar.

Millais considers it "a very rare species on the Tay estuary." He adds: "I have only once seen it, when an individual frequented the Lucky Scaup for the winter of 1885. M'Kinnes at Glencorse told me that he had only once seen a small flock and had killed one of them."

### Bernicla brenta (*Pall.*). Brent Goose.

For the most part a coast frequenter, but occasionally got inland. Not considered to be very abundant, and probably not nearly so common as it is on the upper reaches of the Firth of Forth and along the Stirlingshire shore.

At inland localities it has been recorded from Methven Loch and on the Tay a little above Perth (*auct.* Mr. Malloch). A Methven bird was shot by Lord Strathallan's son in March 1878. Others have been seen or obtained about the same time of year. I only give one instance to fix a date.

Dr. Dewar considers it "rare in his district."

Millais writes that he has only killed the black form of the Brent on the Tay and Eden; "whereas in the Moray Firth I have shot all the three known races—the black, the white-breasted, and the intermediate form in one flock." He adds: "I have once killed a Brent Goose from a small flock at the Lucky Scaup in the middle of

August—an unusually early date. Brent are scarce both on Tay and Earn, as there is so little *Zostera maritima*."

### **Bernicla canadensis** (*L.*). **Canada Goose.**

Introduced, but has become a permanent resident.

It may be possible that true wild birds occur at times, but Canada Geese have been so often and generally introduced for a number of years, that it becomes a hopeless task to discriminate between wild migrants and home-bred vagrants. They are occasionally shot as they wander out from their homes or increase in numbers there.

Thus Mr. Milne says: "A quantity of these birds are on the ornamental ponds at Glensaugh, and are never interfered with, but are allowed to have full liberty, and are never in absolute confinement." There are numbers of Canada Geese nesting on this loch near the Cairn Road, about three or four miles from Auchenblae (*vide in lit.*, 19th May 1897). About sixteen birds in 1905.—J. A. H.-B.

I have not been able to ascertain what was the earliest date at which Canada Geese were introduced into Forfarshire, but perhaps I may be able to fix a date before this copy goes to press.

Nor have I been able to get dates fixed of their introduction at any of the other places where they are now found commonly, such as the loch at Ochtertyre, Crieff; Methven, and others. But, if *such dates are anywhere available*, it might be of interest—*some day*—to have the records. I would be pleased to see them placed definitely in our chronology.

### [**Bernicla ruficollis** (*Pall.*). **Red-breasted Goose.**

Any of these which occur are, in almost all cases, escapes from introductions.

A pair visited the Earn near Moncreiffe in the winter of 1878-9, and it has been seen occasionally on the Tay. One in Col. Drummond Hay's collection was shot on the Tay opposite Newburgh-on-Tay in the winter of 1829. I cannot say whether any of these rare eastern birds had been introduced by that time or not.

Mr. D. Dewar saw seven alight upon Loch Tay in January 1899 and secured one (*in lit.*, November 27, 1902).]

### [**Chenalopex ægyptiaca** (*Gm.*). **Egyptian Goose.**

Millais writes: "I have a specimen which was shot on the Tay in 1887. It is suspiciously like a bird escaped from confinement, so I do not claim too much for it. I purchased it from Mr. Malloch."]

**Cygnus olor** (*Gmel.*). **Mute Swan.**

Domestic. Common. In some cases may almost be considered as half wild.

Some which for a long time frequented Loch Rannoch, both in summer and winter, have of late years taken flights away towards the Moor of Rannoch, and I saw one of these myself on the upper portion of the river Gower where the railway bridge now crosses it close to Loch Luydon, and this was in midsummer in 1902. This may simply be an extension of their breeding quarters consequent upon increase at older centres, and also induced by repeated autumn or winter movements, as with wilder species—a natural extension.

A few of these birds are kept upon many of the resident gentlemen's ornamental lochs and ponds, from the north-east all over the area to the other extremities of TAY.

**Cygnus musicus**, *Bechst.* **Whooper, or Common Wild Swan.**

Common, and some seasons abundant winter visitants, though not comparing in numbers with those in the Outer and Inner Hebrides.

Wild Swans were abundant on the lower reaches of tidal Tay in the early part of 1879, when a good many were shot—*e.g.* three or four at Newburgh, one at Dundee, one at Edenmouth, and others.

Mr. Milne records one shot at Drumtochty "a few weeks ago," *i.e.* prior to his sending me his list in 1894, after Col. Drummond Hay's death.

Mr. W. E. Frost, Ardvreck, Crieff, shot a Whooper about 1901 or 1902 between Broughty Ferry and Monifieth (*in lit.*, 7th April 1904).

It is marked only as "occasional" in Dr. Dewar's list for Arbroath neighbourhood.

One was obtained on a pond near Dundee on 13th October 1880 (*fide* Mr. P. Henderson, *in lit.*; and see Natural History Society of Glasgow *Proceedings* at p. 50).

A flock was reported on Tay in the winter of 1847-8 by Mr. Archibald Hepburn (*Zool.*, 1848, p. 2148); and there are many others not necessary to enumerate. *Obs.*—A Black Swan was shot on the river Eden, Fife, near Niddry (or Nidie?) Mill, by a Mr. Philip, Kincaple, in 1846, and was stuffed by Mr. Sinclair, St. Andrews; at the time of capture it was destined for the Museum of the Literary and Antiquarian Society of that city (*Zool.*, 1846, p. 1501).

*Obs.*—A Black and White Swan was obtained by Mr. Nicol

Simpson at Arbroath, and was in all probability an escape from Restalrig Park, where the late Mr. D. A. Paterson had several crosses in confinement, and may have imported some to his estate at Dalnaglar in Glen Shee.

The Rev. Mr. M'Connochie mentions, but without differentiation, that "sometimes a few Wild Swans frequent the lochs to the west" of his area.

### **Cygnus bewicki**, *Yarr.* **Bewick's Swan.**

Occasional. Not really very rare.

A flock of sixteen has been counted flying over, and other records reach me from the estuary of the Tay, but no others from any other localities, though I would have expected to hear of some on the Montrose basin.

The significant fact remains patent to students of old-world migration that the greatest bulk of Bewick's Swans which visit this country in winter select as their quarters our western isles and seaboard in preference to our eastern districts. The student of migration will also note how very generally the rule *seems to apply* that even *land birds* of easternmost European and even Asiatic breeding distribution, bulk larger upon our *western* than upon our *eastern* seaboard, *i.e.* between the North of Scotland and the Firth of Forth. We have often directly, or indirectly, stated this to be our opinion. Of course I do not refer *here* to all the teachings of Gätke's experiences, as these bring in totally different issues, though of similar significance in relationship to the Continent of Europe. Neither do I refer here to the migration which "sets upon" our shores more to the southward, and along the far-stretching low East-Anglian shore.

### **Tadorna cornuta** (*Gmel.*). **Common Sheldrake.**

Fairly abundant. Resident. Breeds.

It is found along the shores in suitable localities. It has been on the increase since protection was more fully accorded, and more rigidly enforced at Tents Muir; and since the adoption of the Acts for the preservation of birds was taken in hand by the County Council of Fife, under the then Secretary for Scotland, the Hon. G. O. Trevelyan (1892-5), thanks are due to Mr. W. Berry for assistance in drafting the portion of the adaptation of the Acts which related to

Tents Muir, but which area has now been merged in more general legislation by the succeeding Secretary for Scotland.[1]

The lands of Barry also were occupied by quite a number of these birds, nesting in the rabbit-holes, and which seldom were found to stray far from their homes, and are seldom seen further up the tidal Tay than the upper end of Mugdrum Island.

Mr. Milne informs me that a pair had been introduced to the ponds at Drumtochty, but only the female had survived by 1895.

Both old and young are found about Johnshaven (*auct.* D. Towers, late taxidermist at Montrose).

In 1900 an attempt by these birds was made to extend their breeding range to the links of Montrose, but was defeated by three of the young having been stoned to death by some young "cads" of the town (*Montrose Standard*, 8th June 1900); and a whole brood of young "Mire Ducks" met with a similar fate the year before. Such cases are what ought to occupy more attention than they do from our County Councils. (Much law-making, and less and less enforcement; often, however, because the laws are incompetent!)

Millais relates that he once saw a flock of 500 Shelducks at the mouth of the Eden. He says: "They are always very wild and watchful, and are much trouble to the puntsman."

Sheldučks may almost at any time be seen in large numbers off the mouths of Tay and Eden; and I have various other accounts of flocks of these birds from several observers, and have myself frequently seen them in considerable numbers there, especially at the latter locality.

### Anas boscas, *L.* Common Wild Duck, or Mallard.

Old Gaelic name, *Lacha chinn uaine* (old *Statistical Account*, xvii. p. 252).

The old *Statistical Account* often speaks of "Wild Ducks," and it is not easy always to feel certain what species is intended, so I prefer to ignore the most of the records in that work; besides there are not a great many entries in it altogether.

It is reported fairly abundant in Forfar and Kincardine by correspondents, and seems to become more numerous the further inland its distribution is followed, at least in the breeding season, until again the south-west is reached, where it appears to be scarce. It is, however, very general all over the area, and designated common around the lochs and marshy grounds near Forfar and Guthrie.

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[1] I have considered it well worthy to put the fact on permanent record of the direct advantages accruing from *local knowledge*, as shown in the case of Tents Muir, by giving a map of the district above referred to (see p. 278).

Glen Ogle and the west end of Loch Earn do not appear to be so much favoured by the species as many other parts, and Mr. Godfrey remarks more than once upon its scarcity there.

Close to that locality, however, I have to take notice of an albino which was obtained on the Balvaig Burn, which flows out of Loch Voil (FORTH); and the proprietor, Mr. Carnegie, of Stronvar, had evidence to show that it was a truly wild-bred bird, because he knew of two others—apparent albinos—having been seen at the same time, which were accompanied by two others of normal appearance, in a brood of *Anas boscas* (*Proc. Royal Phys. Soc.*, vol. v. p. 34). But I do not feel that this is absolutely conclusive evidence myself.

### **Tadorna casarca** (*L.*). **Ruddy Sheldrake.**

Specimens are on record as follows; and they have even been made to appear as if the birds might have bred if they had been allowed to do so, *i.e.* if the whole information could be relied upon at all. Thus:—

One was caught in a rabbit-hole at a certain place on the sand-dunes of Forfar (*auct.* Mr. M'Andrew, *viva voce* to Col. Drummond Hay), and this was *verified* by a Mr. Marshall, birdstuffer, Arbroath, who said he had had two or three of the same species "three or four years before" (*i.e.* prior to the above). And another was shot in the same neighbourhood in April 1881, also by the same Mr. M'Andrew, junior, plumber, Carnoustie, and also stuffed by the said Mr. Marshall (vide *Trans. and Proc. Perth. Soc. Nat. Sciences*, vol. i. p. 10, for both of these records). Again, in 1894, three in winter plumage, one being a young one and two old, male and female, were shot in company, and another was seen on 26th September 1894. Two of these are in the Perth Museum, and were *believed* by Col. Drummond Hay to be genuinely wild birds.

I would hardly think it worth while to repeat these accounts, were it not that they seem to have been accepted in the Museum.

I place them in square brackets, as either they may have been bred from escaped birds, and were not truly wild ones. Ornithologists whose knowledge tells them about the usual known range of species, will be quite able to place the true value upon such records.

But I may add that it may well be desirable to take *any* notes made by the said Mr. Marshall with a pinch of salt; because, as I am aware, he was rather fond of springing small surprises (or big ones!) upon his customers and frequenters of his premises, and I have heard some rather "*phunny*" stories told of this idiosyncrasy!

### Chaulelasmus streperus (*L.*). Gadwall.

Very rare visitant.

Considered quite of doubtful value in the east by Dr. Dewar. But Don was aware of its presence as long ago as 1813, and had seen them upon the lands of Rescobie and Balquharries.

A male and female were obtained at Newburgh, Fife, in the beginning of April 1859. The female had ova not very far advanced. It was seen in a poulterer's shop in Edinburgh by Mr. R. A. Dassouville, who also saw the invoice which accompanied the consignment of wild-fowl (Dr. J. A. Smith, *Proc. Royal Phys. Soc. Edin.*, vol. ii. p. 110, and exhibited 27th April 1859).

There is also one in the Perth Museum, which I presented, and which was found by me in the Edinburgh Market, and purchased November 20, 1867; and I recorded it in the *Zool.*, 1867, p. 562. The locality given me with this bird was "shot on the Tay."

Mr. Malloch informs me that he has not heard of any obtained on Tay this season (*in lit.*, April 1879), and he adds: "I have not heard of any being obtained during the past ten years." But Millais appears to consider it as "a regular autumn and winter visitor to Tay and Eden." He possesses three Perthshire specimens, but he had not heard of its breeding.

Mr. Henry Kelsall, replying to inquiries made at my request, writes to Mr. Frost (to whom I am indebted for much help in such matters): "The exact dates on which I shot Gadwalls on Pittenrian are as follows—December 29, 1898 (one); January 31, 1899 (one), this bird was given to the Perth Museum of Natural Sciences; February 13, 1900 (two). If I remember aright, I shot one, if not two, more; but as I made no special mention of them in my game-book I cannot tell the dates" (*in lit.*, October 26, 1905).

### Spatula clypeata (*L.*). Shoveller.[1]

Formerly rare. Increased and increasing. Resident. Breeding in increasing numbers of late years. Becoming very generally distributed in suitable situations on the shallower and reedier lochs of the east.

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[1] In the form of a footnote here, it may not be out of place to give a short *résumé* of the earlier history of the bird in Scotland, and in Britain. Our earlier authors appear to be agreed, for the most part, that the Shoveller occurred rarely, and principally in the eastern parts of Britain in the winter, and that a few remained to breed in the marshes of Norfolk; but we have no early records of its nesting in North Britain, and, down to the time of Macgillivray's writing, there is no appearance of its having been added to our list of nesting species.

When Gray wrote, certain indications were presented regarding their lines of flight in passing. As that author says: "Having traced the migratory flight of the species northwards (from Lancashire to the Solway Firth) and thence in an easterly direction through the counties of Berwick, East Lothian, to Fife, Kinross, Kincardine, and Aberdeen, I conclude that the breeding haunts of species must lie *somewhere to the north-east of the British Islands,* and that in migrating northwards along the west coast of England the flocks are tempted to swerve from their course by the trend of the Solway." Mr. Gray then records the nesting of the Shoveller in Possil Marsh, near Glasgow, and also in Renfrewshire, Wigtownshire, and Loch Lomond, but denies it as present in the Outer Hebrides, and only a rare winter visitor to Islay.

Coming to still later accounts, we now know that its distribution has been very fairly worked out as regards its continental range (*auct.* Dresser, Saunders, etc.). It is still spoken of as "scarce in our southern and western counties," but as "appearing to be resident in our eastern side of England"; and, on the authority of Mr. Southwell, "although not so generally distributed as formerly, breeds regularly in various parts of the county" (*v.* Lubbock's *Fauna of Norfolk*). In Scotland, records of nesting only reach us from the southern counties, and casual occurrences from localities north of FORTH and CLYDE, as only once obtained in Orkney, and not found in the Shetlands nor in the Outer Hebrides.

We take Dresser's account as the latest and fullest as regards the distribution on the Continent, and without going into *minutiæ*, that clearly shows its limits there to be confined to south-west of Norway, where it is not common, and as far north as 62° N. Lat., and then across a band of country which stretches across Lakes Ladoga and Onega to Archangel. Seebohm and the present writer found that line continued even further north upon the islands of the Petchora river in north-east Russia, and to within the Arctic Circle.

I have no intention here to insist upon any general principle about the dispersal of species, lest I be accused of "massage," etc.; but I only give this as a further instance of what I have always maintained, viz. that the migrations of birds precede their establishment as breeding species; and that any one studying either or both of the phenomena of migration and dispersal cannot afford to despise what I have always advocated, viz. chronological recording, and it is principally because we have not had this done by our earlier authors, that we find so much difficulty now (A.D. 1905!) in studying them.

Only a few were got on Tay at or by the time Col. Drummond Hay wrote—1880. A pair were recorded as rarities at Ballathie, and one was shot, and this was reported by Mr. Thos. Marshall (*Scot. Nat.*, vol. v. p. 260).

Then there was a nest got with a "clutch" of ten eggs some time prior to 1895, and recorded by Col. Drummond Hay (*in lit.* to me).

A pair were seen at the mouth of the river Dochart by Mr. Holmes when fishing at Killin in, I think, 1897.

But in the St. Andrews Museum there is one dating as long ago as 1838, a female.

In the north-east one was got and forwarded to Mr. Small in the flesh, March 12, 1884 (Registers).

Mr. W. Evans found five or six pairs breeding at Craigleith Moss, Murthly, and was told by the keeper that they had bred there for ten or twelve years—say as far back as 1875.

One in Mr. Marshall's collection was shot, 19th April 1886, by Mr. James Syme.

In 1900 they bred on Tents Muir.

And in 1904 the Shoveller is still designated as a "very rare bird" in the extreme east of Forfar and the Arbroath district by Dr. Dewar. But in 1905 I found it far from uncommon on the further inland lochs of Rescobie and Loch of Forfar. It is undoubtedly an increasing breeding species through Strathmore and elsewhere, as for instance at Methven Loch, where, Millais tells me, there are about five pairs; also at Kinnaird about two pairs; and other places, probably Lindores, Dupplin, and Meikleour, and he adds: "I have killed specimens at Mugdrum and on Tents Muir."

Now, though we know of their nesting close to the south-western boundary of our present area, viz. at localities in FORTH, still it remains a stranger in the breeding season, or almost so *within* south-west TAY. It is not, however, very difficult to account for this, because the lochs, with but few exceptions, are scarcely suited to its requirements; nor have the diving Ducks arrived there in any force. When the Tufted Duck comes to take up house upon lochs suitable for *its* requirements, the Shoveller is often found to follow, for the very good and sufficient reason that lochs formerly unsuited to a surface-feeding Duck become quite altered when the feed is loosened and brought up, or floated up, to the surface. Of course it is not every loch which is suited to either the one or the other, and if a loch is too deep or does not contain the favourite food-supplies of the one, naturally that food cannot be brought up, or floated up, to the surface.

When I say it is almost a stranger as a breeding species to south-west TAY, I am not unmindful of other localities close to the borders of TAY, which simply emphasise my remarks above as to suitableness of their areas.

### **Querquedula crecca** (*L.*). **Teal.**

Old Gaelic name, *Crann lacha* (old *Statistical Account*, xvii. p. 252).

Common resident. Breeds. General distribution.

The numbers on the lower Tay had become greatly reduced by gunners when Col. Drummond Hay wrote.

The Teal breeds not uncommonly about Arbuthnot in the north-east, and in suitable places throughout TAY as far as Loch Eigheach and westwards.

A peculiar variety was described by Col. Drummond Hay (*Annals Scot. Nat. Hist.*, 1896, p. 27), which was at that time intended to be given to the Perth Museum. I did not observe it in the Museum when I visited it in 1905, nor upon previous occasions.

Millais informs me that as many as 100 Teal have been killed in Murthly Bog in one day, and he continues an account of its general abundance. "It is abundant about Mugdrum Island and the adjacent mud-flats of the Tay. Teal fly very close at times, when flying down wind or 'bunching' after a shot. I once slew 11 Teal with two cartridges from an ordinary 12-bore."

It is comparatively a rare thing to get much sport with Teal at flight-time, but I remember on one occasion when flighting duck near this house—Dunipace—a "bunch" of Teal came flying suddenly in, as they usually do, very low and very "twisty," almost like Snipe. I fired without having time to get the gun to my shoulder, and to my astonishment I found I had dropped four birds. No doubt they were just "bunching up" preparatory to alighting when I fired.

### **Querquedula circia** (*L.*). **Garganey Teal.**

Rare occasional visitant.

Don quotes the Loch of Forfar as a locality for its occasional appearance (1813), and Dr. Dewar marks it as "a rare visitor in upper Forfarshire."

Rescobie and Fithie Lochs look as likely places as any for their occasional visitation, but the Rev. Mr. M'Connochie does not include it in his list. But then neither is its name included in the latest *Guide to the Perth Museum* (1905), upon a copy of which Mr. M'Connochie worked in his list.

## Dafila acuta (*L.*). Pintail.

"At one time only a casual visitor," according to Col. Drummond Hay, *i.e.* prior to 1880. But now, resident and breeds.

An early record is given for Fife (FORTH), viz. an adult male sent by the late Mr. Edward Hargitt and exhibited by Dr. J. A. Smith at a meeting of the Royal Physical Society, Edinburgh (vol. ii., 1858-9), which was shot in December 1858.

At the date of 1873-4 Mr. W. A. Brown had shot examples on the tidal Tay, and on the Eden; but he considered it "quite a rarity" at that time.

In the north-east, even at the present time, it is considered a "rare winter visitant in the east of Forfarshire" by Dr. Dewar.

In 1897 Mr. Milne adds it as "new to my list for Kincardineshire," and instances "one caught at Johnshaven, for the first time."

Of its more recent advances and increase, I may instance the following note from Mr. J. G. Millais. When speaking of a hybrid between the Wigeon and Pintail, he remarks upon the apparent increase as follows: "Now (1890) a winter does not pass without a pair or two of Pintails." This is an interesting chronological note in the light of recent discoveries of the nesting of the Pintail at Loch Leven (FORTH).

Millais sums up his experiences of the species thus: "A visitor in small numbers to the Tay and Eden estuaries, where I have shot it. In some seasons quite a number come about Mugdrum, and they are abundant on Loch Leven, where about twenty pairs nest (FORTH). I have not heard of its breeding in Perthshire, but I have no doubt it will soon do so. Pintails are the shyest of all surface-feeding Ducks, and are very difficult to shoot." He then refers to the above-mentioned hybrid in his possession, which was shot on the Earn.

Mr. M'Connochie includes it as occasionally shot on the lochs in winter.

## Mareca penelope (*L.*). Wigeon.

Abundant. Resident. Breeds.

Col. Drummond Hay has it as "pretty frequent on lower Tay, and appearing on many of the lochs and streams," but he makes no mention of its having nested anywhere within the area. This was in 1880; but, as will be shown, there is abundant proof that the Wigeon had bred in Perthshire for a long time prior to that date.

Now, in 1874, I was well aware of numbers nesting and rearing their young around the weedy shores of Loch Eigheach on the Moor of Rannoch, and I applied for permission to go there the following summer and help myself to one "clutch"; but the English tenant, who succeeded to those with whom I had shot over the Moor of Rannoch the previous season, refused—or at least would only permit me to receive a "clutch" through the keeper, which was not what I desiderated at all. Since then I have had evidence in abundance of their nesting in many other parts, making it almost unnecessary to particularise the distribution.

LOCH GLENSAUGH—WIGEON, CANADA GEESE, AND WILD-DUCKS' NESTING-PLACE.

Now Col. Drummond Hay, whilst apparently unaware of their nesting anywhere in Perthshire at the date of 1880, gave their nesting distribution, amongst other haunts, as including the Outer Hebrides and the Orkney Islands. But there is *no* good evidence that they bred in these parts *at all* at the time he wrote. He is correct, however, in quoting the northern parts of Sutherlandshire, as we had it on the authority of Jardine and Selby that they did so commonly as long ago as 1835, and localities are quoted, viz. Loch Shin and Loch Naver and Loch Hope ! I do not, however, put much reliance upon the statement as applying to the last-mentioned locality, as I do not think they bred there till much later (see the previous early volume of this series). Also Yarrell supposed these localities to represent the most *southerly* breeding haunts of the species at the time he wrote (1st ed., 1844), quoting Jardine and Selby, but see the footnote as regards Loch Garry, etc.

In the north-east their advances have been much slower, as the following may serve to indicate. Mr. Milne records their first appearance at Glensaugh Loch as late as 1897. Now, in the previous year, Mr. Milne had sent me his list, in which no mention was made of this bird at all. But in the next year he gives notice of their first appearance as follows: "Two males and one female first arrived at Glensaugh Loch in February 1897." Mr. Milne was, later in the same year, shown the nest by the keeper, viz. on the 16th May. He well describes the creamy white of the eggs. (At the same time he took notice of the first advent of Tufted Ducks at the same place !) Again, in 1899, the Wigeons appeared to resort to Glensaugh Loch for nesting purposes, so they may be considered at last to have thrust themselves eastward from their more direct lines of advance as a populating species. And in 1901 their numbers were increased further by yet another pair.

Indeed, by 1866, although Col. Drummond Hay does not appear to have known of it, or omitted to take notice of the fact, a nest and eggs from Loch Eigheach was acquired by the Museum at Perth, taken by Mr. Macdonald in June 1866,[1] and presented by Sir Robert Menzies (Col. Drummond Hay in *Proc. Perth. Soc. Nat. Science*, vol. i. p. 98).

As to their continuance at this place there need be no doubt, because in 1902 Mr. Godfrey found them as "the commonest Duck of the district, and around Loch Eigheach"—a place eminently suited to their requirements, as I am well aware. And in 1905 I saw pairs of them there also.

Indeed, in most suitable localities southwards the Wigeon abounds, and even far south of our present area, into FORTH on Braes of Doune, etc., and south of FORTH and CLYDE.

It becomes indeed unnecessary to enter into greater details as regards more southerly haunts which can be held as owing their origin to any extension from northerly directions. It must, however, remain for our later historians in the south of Scotland to trace their advances of populating vigour, which have within comparatively recent years occupied many places south of FORTH and CLYDE! I do not feel quite assured that the latter owes *anything* to extension from northwards (?).

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[1] As I said, I knew of their nesting there commonly in 1874, v. *ante*.

As yet it is only spoken of as a rare visitor in winter to the lochs of Guthrie parish by the Rev. Mr. M'Connochie, *i.e.* to date of 1905.

So far as I am aware, it has not yet appeared as a breeding species in the north or north-east of Fife, though the lochs there are perfectly suitable apparently to its requirements.

*Obs. Hybrid Wigeon and Pintail.*—Mr. J. G. Millais, writing from Fort George in 1890, draws my attention to the fact that he obtained a specimen of this hybrid, which had been shot on the river Isla, near Perth, by his uncle, Mr. George Gray, and at the same time he remarks upon the commencement of a visible increase in the numbers of the Pintail (see under Pintail).

## Fuligula ferina (*L.*). Pochard.

Common winter visitant prior to 1880. Since become resident and a breeding species.

The same remarks in modified degree apply to this species of Duck as those under Tufted Duck (which see); though, of course, this is a surface Duck as compared with the Tufted.

In 1813 Don considered it rare.

It was known to breed prior to 1895, and a male was shot at Kinop Mire on 1st March 1879 (*auct.* Col. Drummond Hay).

The first recorded Pochard's nest in Scotland was one at Loch Mochaick on the Braes of Doune (FORTH), and not far removed from the southern boundary of our present area. It was recorded by my friend Mr. John Hamilton Buchanan, of Leny, Callander, and was taken on the 22nd May 1879.

Godfrey first saw Pochards on Loch Lindores—north of Fife,—and he felt convinced that they were breeding there in 1896; but it was reserved for Mr. W. Evans to find the nest in 1897. Again Godfrey found them there in 1898, but the nest was out of reach (*Annals Scot. Nat. Hist.*, 1898, p. 291). Evans was aware of at least three or four nests there in 1897.

The Rev. Mr. M'Connochie speaks of it as fairly common on the lochs, and a "few pairs remain in summer."

### **Fuligula marila** (*L.*). **Scaup.**

Common winter visitant.

Many of the remarks under Tufted Duck may be held to apply to this species also, except that it has scarcely yet established its claim as a regular breeding Duck.

A wounded bird stayed for weeks on the curling pond at Seggieden, Carse of Gowrie, became very tame, and appeared to be feeding principally on *Limnœa limosa.*

The Scaup often frequents fresh-water lochs and ponds, such as Loch Rannoch, whence there are specimens in Perth Museum, Loch Methven, the Tay above Seggieden, and other resorts throughout the central districts, and also nearer to the confines of the area where suitable.

I have no notes of it on the lochs around Forfar and Guthrie parish.

So far as I am aware, it has only occurred as a winter visitor in the north of Fife.

### **Fuligula cristata** (*Leach*). **Tufted Duck.**

Formerly only a winter visitant, but now resident and breeds abundantly. It has increased enormously within a few years since the first record of its nesting was reported. I have already with considerable care traced the history of its phenomenal increase in two papers, and Mr. W. Evans supplemented these with additional matter in a later paper.[1]

As a winter visitor the Tufted Duck has come to the estuaries and fresh-water lochs of Tay, as far as we can ascertain, at least since 1879, and I certainly knew of their visits to Forth for a much longer time. A pair from Methven Loch, Perthshire, are labelled 1878. The earliest record I can find is one at Butterstone Loch in 1875 (*Ibis*, 1875, p. 514).

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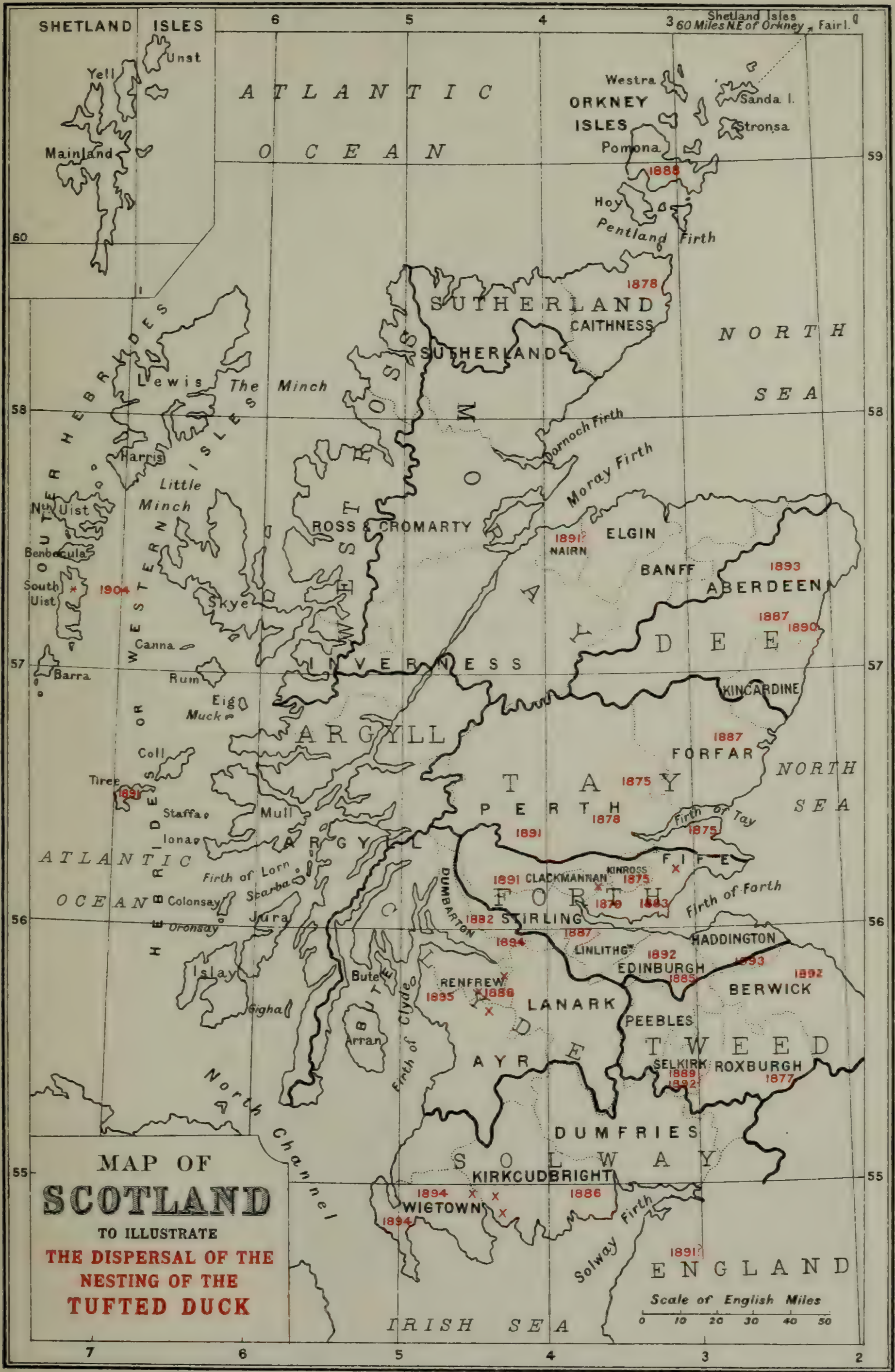
[1] "The Tufted Duck in Scotland, its Increase and Distribution," by J. A. Harvie-Brown, F.R.S.E., F.Z.S., Map, pp. 20 (*Annals Scot. Nat. Hist.*, Jan. 1896, pp. 111-120).

And a paper with a similar title, pp. 17 (*Proc. Royal Phys. Soc. Edin.*, 1896, vol. xiii. pp. 144-160. Read 18th December 1895). This second paper is an account of the *deductions drawn from the latest accumulation of facts.*

"Some Notes on the Tufted Duck (*Fuligula cristata*)," by W. Evans, F.R.S.E. (*Annals Scot. Nat. Hist.*, 1896, p. 150). This gives additional facts, and is also in some measure critical of the two previous papers.


SHETLAND ISLES
Unst
Yell
Mainland
60
Shetland Isles 60 Miles N.E of Orkney
Fair I.
ATLANTIC
OCEAN
ORKNEY ISLES
Westra
Sanda I.
Stronsa
Pomona
1888
Hoy
Pentland Firth
59
SUTHERLAND
1878
CAITHNESS
SUTHERLAND
NORTH SEA
OUTER HEBRIDES
Lewis
The Minch
Harris
Little Minch
N. Uist
Benbecula
South Uist
1904
WESTERN ISLES
Skye
Canna
Barra
Rum
Eig
Muck
ROSS
ROSS & CROMARTY
MORAY
Dornoch Firth
Moray Firth
1891?
NAIRN
ELGIN
BANFF
ABERDEEN
1893
1887
1890
DEE
KINCARDINE
INVERNESS
ARGYLL
Coll
Tiree
1891
Staffa
Mull
Iona
INNER HEBRIDES
ATLANTIC OCEAN
Firth of Lorn
Scarba
Colonsay
Oronsay
Jura
Islay
Gigha
FORFAR
1887
TAY
1875
NORTH SEA
PERTH
1878
1891
Firth of Tay
1875
FIFE
KINROSS
1875
CLACKMANNAN
1891
FORTH
1879
1883
Firth of Forth
DUMBARTON
1882
STIRLING
1887
1894
LINLITHG.
1892
EDINBURGH
1885
HADDINGTON
1893
1892
BERWICK
RENFREW
1895
1886
Bute
Arran
CLYDE
Firth of Clyde
LANARK
AYR
PEEBLES
TWEED
SELKIRK
1889
1892?
ROXBURGH
1877
North Channel
DUMFRIES
SOLWAY
KIRKCUDBRIGHT
1894
1886
WIGTOWN
1894
Solway Firth
1891?
ENGLAND
Scale of English Miles
0 10 20 30 40 50
IRISH SEA
58
57
56
55
7 6 5 4 3 2

MAP OF
SCOTLAND
TO ILLUSTRATE
THE DISPERSAL OF THE
NESTING OF THE
TUFTED DUCK

Faunal Areas thus —— County Boundaries thus ..........

J. Bartholomew & Co. Edinr

DATES = First Records of Breeding } = Resident Distribution.
× = Breeding, First Dates unknown }

North of lat. 56° rare at all seasons on West Coast.

* By 1903 or 1904 the Birds had bred in South Uist. They are now exceedingly abundant all over the low-lands of Caithness and extreme East of Sutherlandshire.

But by the date of 1880, at Loch Leven (FORTH), where there was a record for that same year of 1875, Millais calculated that there were at least one hundred pairs *with young*, and they have been "in increasing numbers since then" (J. G. M., *in lit.*). Mr. Evans gives many early accounts from other parts of Scotland, going back in the history of the Tufted Duck as a Scottish species, and quotes Don for Forfar thus: "*Anas fuligula*, Tufted Duck, in the lakes." Others of these earlier records relate to the species both to the north and to the south of our present area, *e.g.* Low-Pennant for ORKNEY; Macgillivray, 1837 (pp. 302-306), for FORTH; and he quotes Osborne for the statement that "it is almost certain that the Tufted Pochard breeds in the vicinity of Wick, etc." This dates 1862, so the question arises: if this was the first true record of its having nested, was the subsequent dispersal towards the south, and not, as I have endeavoured to show, from the south northwards? Osborne's evidence, however, is only presumptive, and I think mine bears greater weight, as it is built upon a long series of dates all over the country, collected with every care.

Returning to the area at present under more direct treatment, we find that they bred again on Methven Loch in 1878 (Rowley Jex Long, *Proc. Nat. Hist. Soc. Glasgow*, 25th February 1879). Millais first heard of their breeding in Perthshire about 1877 (Methven Loch again), and a male and a female were shot at the same place in 1878, and are in the Perth Museum (*auct.* Col. Drummond Hay, *in lit.* to me). The first nest which the Museum received was from Methven Loch again, in June 1888. Mr. Malloch claims earlier dates for their nesting on Methven Loch, but Mr. R. Jex Long writing to me says: "I received the eggs from Mr. Malloch. They were got on Methven Loch in a Swan's nest, and he said it was the only one he had seen. I understood from him that he had never previously seen or heard of the species breeding in Scotland" (*Annals Scot. Nat. Hist.*, 1896, p. 15).

By 1896 they were breeding at Loch Lindores, and in all probability were doing so at a much earlier date, not to mention many other sites on the south side of the Lomonds and beyond our present area.

To summarise the facts once more as shortly as possible: It appears that Loch Leven and Perthshire has been the main centre of their colonising Scotland, with all due respect to these early isolated records to the north and south (*vide ante*). And the earliest nest on Loch Leven appears to have been one of which Mr. Evans gives particulars, viz. in 1872 (*Annals Scot. Nat. Hist.*, 1896, p. 151);

whilst the earliest in TAY seems to be claimed by that which was recorded from Loch Butterstone in the *Ibis* for 1875. From Forfarshire I have the following information, which I quote from my first article as given in the footnote (*ante*, p. 240): "In Forfar and Strathmore, as I was informed by Mr. Henderson, of Dundee (*in lit.*, 27th August 1895), for many years it was only a winter visitant, but"—Mr. Henderson continues—"I have had it frequently brought for stuffing in the summertime during the last eight years, mostly from the Forfar district. The estate of Inshewan, where there are several small lochs, is a favourite place, but there are many more small lochs frequented by it." I am acquainted with the estate of Inshewan, and shot there in August-September 1886, but all the time I was there I never met with a single specimen.

Up to 1895 Mr. George Sim, who had traversed a great portion of the adjoining county of Kincardine, had never met with the bird anywhere (*in lit.*, 17th August 1895).

I need not, I think, go any further into its past dispersal here, but refer my readers for more minute details in the papers quoted.

Of its present distribution it is sufficient to say that it is one of our commonest Ducks on all suitable lochs throughout the central and east portions, and just outside the south-west boundary of the area in FORTH. So far as my information goes it is, however, only appearing on Loch Tay and in the northern parts and in the north-west as a winter visitor, and that not in any great numbers as yet, whatever the future of the bird may be in the west.

I believe that the nature of these more rugged lochs in the west are not so likely to entice it to break away to that side of the country, at least not in great force. (See my remarks in the second of my previous papers.)

*Obs.*—Of the earlier accounts of its nesting on Loch Leven, I feel that I must leave these to be verified, if possible, by Mr. W. Evans, only adding here, that to me the evidence shown is insufficient and rests upon too insecure foundations. Personally, I am willing to believe it possible, but the absence of more detailed proof must make me adhere to my rule. This much I will admit, and even be inclined to support: I do believe Loch Leven to have been one of the earliest amongst our Scottish lochs which were occupied by the species as breeding haunts. Beyond this I am not inclined to go.

At the present time it is an abundant species on the lochs about Forfar and Guthrie, and a fair number remain and breed there.

Finally, in trying to trace the dispersal of the species in Britain, we must take into consideration the question—Where is the area of its greatest occupancy on the Continent? And that ascertained, which have naturally been the lines of subsequent extension? For that information I think we have abundant evidence in previously published works on distribution.

### [*Obs.*—Clangula albeola (*L.*) Buffel-headed Duck.

Mr. Sim has disposed of the specimens shown to Mr. R. Gray,—one by Mr. Craibe Angus, and one by Mr. Edward, of Banff; the first, stated to have been shot on Loch Loriston in January 1865 (a fine male); and the other on the Loch of Strathbeg (DEE) "many years ago." Any further comment is quite unnecessary here for those who understand the right use of square brackets.]

### Clangula glaucion (*L.*). Goldeneye.

Common winter visitant.

It is curious to find how persistently Goldeneyes visit us and remain with us long into the spring and even the summer months, but refuse to stay with us during their breeding season. Their breeding season in Norway comes off in June.

The Goldeneye is frequent on the upper reaches of the river Tay in winter, and they often go some distance up the river. Thus, they congregate about Kinfauns, and many remain on the lower reaches as late as the 7th April or thereby. But human intervention, decidedly, comes in to prevent a longer stay, as the bird might well be believed to avail itself of nesting sites if permitted. The "Fast Day" in Dundee and in neighbouring towns makes holiday for crowds of "shore-poppers." The Goldeneyes "lift"; and after that "high festival" for men not another remains. Where less disturbed I have seen Goldeneyes remain well into May, and even into June—as, for instance, off the more open coast of Berwickshire on the 3rd May—which individuals no doubt remained even later.

As regards the nesting of this bird, I think I have disposed of former records in Scotland to the north of the Grampians, and, with one exception, to the north of FORTH and CLYDE. But one remains which I think may as well be disposed of now. A pair were reported to have "nested in a hollow tree" in a locality in the south of Perthshire (FORTH) "last summer," *i.e.* 1879 (*Proc. Nat. Hist. Soc. Glasgow*, September 1879, p. 184). That may now be relegated to the class of "very doubtfuls." Indeed there is evidence to show that it was not a Goldeneye at all, but a Goosander.

Innumerable records of their occurrences could be instanced, but these would scarcely be of any significance. Many small lochs, ponds, and especially reservoirs for town supplies or other storage purposes, mill dams even, and long, deep reaches of still-flowing rivers, but also larger lochs like Loch Tay, are frequented by these handsome birds. Often does the inexperienced naturalist confuse them in female or immature dress with Tufted Ducks; and many reports have reached me of their "nesting among the rushes by the loch sides"! The Scaup too in adult dress is often taken for the Goldeneye male, because in certain lights and shadows it is no easy matter to distinguish between the males; just as in these certain (or uncertain!) lights it is well known how difficult it often is to "spot" a Blackcock from a Greyhen during a drive, or to tell the difference between *red and black* through binoculars at, say, a distance of three hundred yards under a bright sun and "heat-dance" over a shimmering sea and sand!

Millais makes the remark that they are numerous on Tay, and even more so on Eden, "in nearly every case immature. It is rare to find adults south of the Moray Firth." While scarcely feeling justified in differing from such an authority, perhaps I may be allowed to suggest that the adult birds of this species are rather more given to frequent fresh-water localities during their winter visitations to this country than the younger birds. At least I appear to be borne out in this suggestion by the fact that I have seen more single adult birds upon the river and ponds in central Stirlingshire during hard frosts than I have seen of the young of the year; but closer to the coast, say at Kincardine-on-Forth, I have usually met with parties of four or more young, *unattended by adults.*

Some frequent the lochs around Guthrie and Forfar in winter.

### Harelda glacialis (*L.*). Long-tailed Duck.

Abundant *offshore* and at sea. Winter visitant. Not often met with inshore except under phenomenal circumstances.

But it is a very regular winter visitor on the lower reaches of Tay, seldom, however, going above the tideway except in severe storms or keen weather. Most abundant at sea, and seen at times in numbers at the Bell Rock under certain conditions of the tide (Campbell's *Notes on the Natural History of the Bell Rock*, and the Migration Reports).

It is occasionally seen or obtained in the Montrose Basin. One is in the Museum, Montrose, dated September 1887 (List). Two—male and female—are in Mr. Marshall's collection from Monifieth Bay, dating 4th January 1875, both shot by Mr. Nelson. It has been got too at Johnshaven in May 1896 (*auct.* D. Towns, lately of Montrose).

Many other instances could be given, but these seem scarcely required. At sea they are constantly met with in great numbers, especially by the fisher-folk who ply their occupation some miles from shore.

Millais speaks of "large numbers frequenting the northern shore of the Tay estuary, between Monifieth and Carnoustie, during the winter, and they stay till April, when they leave in parties. A few immature ones are seen about the Eden estuary, but from this part *northwards* (?) adults are rare."

### **Somateria molissima (*L.*). Eider Duck.**

Abundant. Resident. Breeds.

In several of our former volumes we have treated at considerable length of the dispersal of the Eider Duck upon the west coasts of Scotland. Now I desire to say, as shortly as possible, a few words about the bird as found upon our east coasts.

In 1840 Hewetson described the Eider Duck as a most abundant species breeding on the coast of Norway. The distribution of the Eider Duck, as given by Yarrell (1st ed., 1840) and Macgillivray (1835) was: "Outer Hebrides, Orkney, on the authority of Salmon and Dunn from 1812 to 1843." Their distribution on the east coast of Britain has been known to include the same localities which are now inhabited, without any great variation or important changes as far south as the Farne Islands, during that same period. That is to say, the ground which was and still is available and suitable has been as fully occupied as persecution permitted. Since a share of special protection has been accorded to them, along with other species, there has been a distinct *increase*, but there has been but slight *expansion*. That is easily accounted for, simply because the available and suitable areas are limited in extent, and are only of late years being filled up. The most distinct increase has been observable on the recently better-protected area of the Tents Muir in the north-east corner of the Kingdom of Fife, and on certain portions of the coast of East Lothian (FORTH).

Only so short a time ago as 1880, Col. Drummond Hay could record "a few pairs nesting on Tents Muir and Links of Barrie (Forfarshire), though the birds were seen abundantly in winter off the mouth of Tay." Mr. Robert Walker gives a very interesting account of Eiders, and of the next mentioned and rarer King Eider, in St. Andrews Bay, which I would like to have quoted fully had space permitted (*Scot. Nat.*, vol. ii. p. 49).

My friend Col. H. W. Feilden, when resident at Cambo and Rankeillor, in Fife, found Eiders fairly abundant between 1850 and 1855 on Tents Muir, and had seen as many as three or four nests there in one day. That, however, did not by any means represent the holding capabilities of the extensive range of sandhills, etc., but for a time they became much rarer, or indeed within range of possible extinction, due entirely to "bird-nesting boys" from Dundee and elsewhere, who came over in boats and worked their "sweet will" amongst all kinds of wild things. No check was put upon these wholesale depredations for many years. Few things escaped! But, after a time, there was an alteration in matters caused by the introduction of the Bird Preservation Acts, and, better still, the able support given. The County Council adopted the Act, and, with the assistance of the proprietors—Admiral Maitland Dougall and afterwards the sporting tenant, Mr. W. Berry, of Tayfield—it was carried out vigorously. To Mr. Berry all praise is due for his able drafting and laying out the limits of the area where the greater number of the wild birds nested, and the assistance he gave to the County Council in 1896. This must remain ever as creditable and efficient history Genuine acknowledgments, I say, are due to him by all of us who love the untrammelled shores and the "*wild-ways*" of our native land, and all their lonely loveliness, and all the wild things that they harbour—the bustling and crowding throng of autumn migrants among birds, and the vivid lives of birds and beasts and flowers. Sorely were they in need; sorely near destruction, sorely harried, tormented, and despoiled. Let us at least retain some few places of rest far from the pulsing, selfish throng of *inhumanity*, which seems more and more in these latter days to be usurping, crowding, and suffocating the very air we breathe, and monopolising the pleasant paths of former peace! *Vale!* I am at the "three-score time"; my limit may or may not see a still newer phase of congestion now rapidly approaching upon us!

Further to the north, along the Forfar coast, Eiders are found here and there. Young have been caught in the salmon nets at Haughs of Benholm (28th July 1897), others have been shot at Johnshaven in August 1899. It was not then recorded that they bred there (Geo. Sim), but Mr. Milne gives me good evidence of at least one pair nesting among the Braes of Muchalls in May 1900. But the coast in some ways is not so suited to their requirements as to make us expect that they will ever be very abundant there, even if carefully preserved.

### Somateria spectabilis (*L.*). King Eider.

Rare and occasional visitant to the mouth of the Tay *in severe winters*! Seen in large numbers in 1879-80, when several were obtained.

These birds are seen most frequently off the estuaries of Eden and Tay and in St. Andrews Bay. Also in the estuary of the Forth. They appear to remain usually through the winter, and sometimes as late as April, and then disappear. I have watched a small lot, containing one old male and four or five others, off the Isle of May as early as October (FORTH). This was in 1884.

Mr. P. Henderson, Dundee, has had several through his hands at different times, as he informed Mr. R. Walker, when that gentleman was writing his paper on this species as seen by himself frequenting St. Andrews Bay (*Scot. Nat.*, vol. ii. p. 49, 1873-4). I would like to quote Mr. Walker's paper fully, but space forbids. Mr. Walker speaks of an adult male obtained by Mr. Nelson as the second adult male got in Scotland—so far as he was aware—and in his article he gives a very complete *résumé* of all the previous occurrences in Britain, with very complete references in the footnotes, as well as an account of its distribution abroad, including Greenland, Iceland, etc.

With reference to a bird now in the Perth Museum, having heard several accounts of this bird as doing duty for a King Eider, but which is really a Common Eider female, and having verified that—the specimen having been sent to me from the Museum along with its Museum label—I found it to be in full summer dress, an observation made before by Mr. Millais. It was supplied to the Museum by Mr. Jas. Henderson, Dundee, at the same time with other birds, which included a Glaucous Gull, also in full summer plumage, and it had been originally cased along with a superb male. Under such circumstances I must consider such summer-plumaged birds as of exceedingly doubtful British origin![1]

It is scarcely deserving of notice to repeat the statement that

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[1] My readers and intelligent ornithologists can judge for themselves, and assign what values they can place upon this and other records of Arctic birds in summer plumage. Two things may have happened: *e.g.*, it must have got mixed up by some one with other specimens; or otherwise it must have migrated before it moulted, and, being dated December, had not moulted at all!

King Eiders nested on the White Loch, but as that appeared in a scientific journal and may again be quoted, I think it better to mention it here, lest more King Eiders or Eiders be put forward —whether shot in summer or winter—*in summer plumage*!

Millais quite agrees with my using care here, as none of these specimens which have been reported seem now to be in existence, except the one above noted. The best evidence of occurrences precludes me from actually using brackets for the species.

### Œdemia nigra (*L.*). Common Scoter.

Common in large flocks off the coast, especially in St. Andrews Bay, mouth of Eden, and off the Tay, as well as further up the coast, where they are at times caught in the salmon nets off the Kincardineshire shore.

Rarely found at any inland localities, but exceptions have been known of later years. Thus an adult male was got at Ballinluig on Tay, and came into the possession of Mr. R. W. Clarke. Also the late Rev. H. A. Macpherson told me *in lit.* that "Macintyre, who collected eggs for Col. Campbell, of Perth, assured me that he had seen the Common Scoter on a loch in Rannoch." Mr. Macpherson adds: "He may have been mistaken in the time of year—May, but he knows the bird." I have no indication of its actually having nested within the area. And I know of only one loch very far inland where it would be likely to find very suitable quarters. At all events, at the present date, Tay lies far away from its ascertained breeding stations in the rest of Scotland.

### Œdemia fusca (*L.*). Velvet Scoter.

Common on salt water every winter; and often—or regularly—remain long into and even over the summer.

I have seen large flocks frequenting St. Andrews Bay, and off the mouth of the Eden, and have heard of them often remaining there all summer, from residents in St. Andrews (vide *Proc. Nat. Hist. Soc. Glasgow*, 1879, p. 184), and I felt curious as to the cause of their doing so. Col. Drummond Hay remarks upon this same habit, and believed that they do so regularly. He has also seen similarly large flocks upon the coast of the Gulf of St. Lawrence (America), and there he believed that the females were nesting on the land adjoining. This, however, will not account for their numbers on this side of the Atlantic. I am more inclined to think that the birds seen on this side, which are mostly immature, are not breeding birds, but probably younger males driven away from the nesting haunts of the species, and more likely of Northern European origin.

Flocks of these birds also frequent the mouth of the Tay a little further to the north, but rarely ascend above the tidal portions. They are likewise found, but more rarely, on the waters of the Montrose Basin, and here and there along the Forfar and Kincardine coasts. We have evidence of this distribution in specimens in the Montrose Museum, one of which was obtained in 1838 as late as August.

In 1885 Mr. W. Evans counted fifty or sixty Scoters off Edenmouth on 31st May, some of which were Velvet Scoters.

I remember shooting Velvet Scoters in the Firth of Forth many years ago, and my impression is that there were adults amongst them, but of this I cannot now feel certain. All I can and do remember now is that when the birds rose in front of my boat, they were very like Blackcocks.

Millais does not appear to have considered this species to be so common on the Tay estuary. He speaks of them thus: "Common in St. Andrews Bay, whilst a few parties frequent the Tay estuary. Only immature birds seem to ascend the Eden river, and then not more than two miles from the sea. During a westerly gale in February 1885, a large number of Velvet Scoters entered the Eden estuary for shelter. By building a shelter and trench of sand, I secured as many specimens as I wanted in an hour. They are very tough birds to kill."

### Mergus merganser, *L.* Goosander.

Common. Resident. Increasing. Breeds.

The Goosander appears to have been very seldom seen anywhere on the east coast, or at any eastern localities of the area, up to the date of 1871. This was the year that I obtained a clutch of eggs from Loch Ericht, and the undoubted tendency of dispersal came from the west and north-west. But although scarce at that time, still it was a somewhat regular visitor, preferring the upper reaches of the Tay and other main streams to the lower or tidal portions. Of later years they have appeared however in greater numbers on the lower reaches and off Dundee, as reported to Mr. Nelson (no doubt representing the extent of their migrations from breeding haunts to winter quarters). It is now seen also every year upon the Earn and the Almond.

It was reported as having bred in the upper and more remote parts of the area by 1888 to Col. Drummond Hay (possibly referring to my record of the nest on Loch Ericht, where it is now well known). Subsequent information has told us not only of its increase as a breeding species, but also has given us considerable insight into the directions *whence it has spread*.

Most unusual numbers of Goosanders appeared upon our coasts generally in the winter of 1875-6, remaining there until about April 4, and then disappearing. Mr. R. Gray reports having seen upwards of fifty, all shot on the east coast. "It would almost appear to have been an invasion," says Mr. Gray. A female was shot at Inchyre, and passed into the collection of Mr. Marshall, of Stanley; and Mr. Horn instances a nesting site on an island of the Tay between Dunkeld and Ballinluig in 1879 (?). In 1880, again, Mr. Marshall obtained a male from Taymount shot by Mr. J. Castor.

By 1890 the Goosanders may be considered to have become abundant as a nesting and resident species, increasing rapidly, and coming always *down* the valleys of the various rivers until they come to be looked upon as a nuisance by keepers and salmon-fishers, disturbing the pools and destroying the young fish. They then became a persecuted race to a considerable extent, and continue to be so on many properties and along many salmon beats on Tay and tributaries.

Thus, on May 23, 1890, the date of the Rev. H. A. Macpherson's first visit to Mr. D. Dewar at Remony, Mr. Dewar told him he had found two or three nests of the Goosander; but that those birds often build in holes of trees at such a height that their nests are out of reach, and it is impossible to get at them without a ladder. This is contrary, however, to my own experiences both in Scotland and Norway, though the fact as stated by Mr. Dewar is not surprising. I have *usually* found them at a much lower elevation.

The year after I obtained their nest on Loch Ericht, Col. Drummond Hay saw a young brood on Loch Rannoch, and a female on Loch Luydon.

In 1892 Mr. Godfrey was surprised to learn how well known this bird was by name to the inhabitants of the Rannoch district, but we have seen how they have apparently spread rapidly from their earlier cradle in the north and north-west.

It now becomes hardly worth while to enumerate localities—even if that were possible—but they breed upon the following lochs in the Rannoch district alone—viz. Loch Dubhlach, Loch Eigheach, Loch

Luydon, Loch Baa, and Loch Ericht, and doubtless many others besides.

The rapidity of the increase is the dominant interest in this veritable outburst and "invasion"—as Mr. Gray intuitively seemed to designate their sudden appearance in great numbers in the winter of 1875-6, as above related. Thus again, the Rev. H. A. Macpherson informed me that in 1891 there was only one nest found at Taymouth, and it was taken by Mr. J. J. Baldwin Brown—to whom the "Society for the Protection of Birds" awarded their prize of £10 for his essay on that subject. As I was myself guilty of the heinous crime of taking the first I could get, I cannot afford to throw stones, and indeed the Goosander is not now a bird deserving of any grandmotherly legislation.

Even in the east of our area, this bird has become commoner, and examples are usually to be seen between Johnshaven and Gourdon in winter, and several specimens are got every now and then at places inland also. It can, however, only be looked upon as a winter visitant to East Forfar and Kincardine to date of going to press.

I may now refer to my first nest taken in TAY, because, though it was taken note of by Dresser in his great work on the *Birds of Europe*, and he was also witness to their having nested there again in 1873, there has been no detailed account of it, and I may be pardoned for giving it—thus late in the day—as it should prove of some interest to Scottish naturalists generally, as well as to Perthshire naturalists. Previous to doing so, I desire to refer to my former notices of this bird and its dispersal in both ARGYLL and in MORAY, as noticed by Buckley and myself in the volumes treating of these faunal areas, which I, however, merely direct attention to in this place.

I do not think I can give any better account than by quoting, *literatim*, from my egg-book, which I proceed to do:—

1871. 198*a*.—*Mergus merganser*.—8 eggs, particles of down, and flank feather from bird. Taken on Loch Ericht-side, Perthshire, May 20 (?), 1871, by John Macgregor; forwarded to Dunipace, unblown, during my absence in Norway. Blown by R. Finlayson at Dunipace. Eggs contained full-grown chicks. One egg destroyed. The down arrived at Dunipace 12th December 1871.

The history connected with these eggs is as follows:—

On the 29th July 1870, John Macgregor gave J. A. H.-B. the following piece of information, *vivâ voce*, at Dalwhinnie: "I got a nest too, for the first time this year, of the Dun Diver. It was in a hole in a tree, and had ten eggs, and I had the bird in my hand." (I refer here to my journals of date.)

In 1871 John Macgregor was employed to collect other birds' eggs for Captain H. W. Feilden and J. A. H.-B., with the permission of the lessee of the shootings. No directions were given him regarding Ducks' eggs or down, as sufficient importance had not been attached to his communication of July 1870, and as therefore scarcely any expectations of Ducks' eggs or down were entertained.

Now, under date of 25th May 1871, John Macgregor writes: "I have some eggs which I shall be glad to send you if you care for them. They are as follows: 'Dun Diver's,'" etc., etc. At this time J. A. H.-B. was in Norway. The eggs were sent to Dunipace unblown during his absence. They were blown by Robert Finlayson and his son, Malcolm Finlayson.[1] They contained full-grown chicks. No down was sent with them. One egg was destroyed in the blowing, and two others badly broken; but the pieces were preserved carefully.

On his return from Norway, J. A. H.-B. compared these eggs with the eggs of Scoters and Goosanders taken that season in Norway (1871), and also with a number of Red-breasted Mergansers' eggs collected by himself in Sutherland, and others in the Hebrides by Captain H. W. Feilden and himself; and after careful examination, came to the conclusion that they could scarcely belong to any other species than to the Goosander (*Mergus merganser*).

E. R. Alston likewise, when on a visit to Dunipace shortly afterwards, could not separate four from the Perthshire nest from amongst a lot of Norwegian-taken Goosanders. From all the Mergansers' eggs they were easily separable, the distinctions between the two species being, in the opinion of both, very evident.

To the inside of one of the pieces of broken shell was found adhering some particles of the down of the chick. A single spray of this was forwarded, along with two of the eggs, to Mr. H. E. Dresser; also a letter, dated 20th August 1871, in which J. A. H.-B. stated the result of the above comparisons, and his convictions regarding their identity.

Meanwhile, in answer to inquiries, Mr. John Macgregor writes, under date 28th August 1871, a letter from which the following is an extract: "Sir,—I cannot find any down now at the nest, but I will describe the bird as well as I can. It is a large light-grey bird, white underneath; a long neck, and a crest about two inches long—I mean from the head nearly half-way down the neck. The crest was, I think, dark brown, like velvet. The feathers of the crest were not long. I found the nest in the hollow of an old tree. The date was about the 20th May. I found the nest on the side of Loch Ericht. Whenever (the bird) flew off the nest, it dived into the water, and I never could see it more."

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[1] My then gamekeeper and his son.—J. A. H.-B.

A copy of the above extract was now forwarded to Captain H. W. Feilden, and by him to Mr. H. E. Dresser.

Under date of 3rd September 1871, Mr. Dresser wrote: "I have your letter and the eggs. . . . They are awfully Goosander-like." He then goes on to say that he cannot "identify them from the young down," as "without all the young it cannot be done." Then in a *P.S.*, referring to John Macgregor's letter just received,—"which I think tends to show that the eggs are Goosanders'; the more so that, in my experience, I always found the Goosanders to breed in trees, and never on the ground. I will hunt up all information on this point, as I think it will be one step further towards making them out."

J. A. H.-B. then wrote again to John Macgregor asking him to try hard for the down yet; even a single spray, by careful search, might be found in the nest-hole.

Mr. Dresser then wrote, under date of 9th September 1871: "I believe the eggs are Goosanders', but I want to prove it."

At length comes a letter from Mrs. Macgregor, dated 11th September 1871, enclosing down from the nest-hole and a single feather in every way answering to a feather from the flank of a female Goosander in our collection. She says: "My husband is very busy, and he wants me to write. He went nine miles the other day to the nest, and what is in the enclosed envelope is all the down of the bird he could get. There was none in the nest, but it was all fallen down in the hollow of the tree. He got it out at the bottom of the tree."

The feather and down were sent to Mr. Dresser, who confirmed my comparison, and in answer said: "I congratulate you on the first recorded nest of *M. merganser*" (*i.e.* from Scotland, J. A. H.-B.). He also enclosed the feather I had sent him, and others, for comparison, showing at once the identity of the eggs.

I have inserted the page in the egg-book just as Mr. Dresser sent it to me (*q.v.* p. 198).

In connection with this discovery, Mr. R. Gray wrote to me, under date of 30th August 1871: "I have seen adult Goosanders killed at Loch Dhu (or Dhuloch ?) in Perthshire, as late as the beginning of May, and it would not surprise me to hear of the species breeding somewhere in that county regularly." However that may have been, the above stands as the first record for TAY, and I believe the second for Scotland.[1]

In the following year I conveyed Dresser to the spot on Loch Ericht where the above nest was found, guided by the instructions given to me in another of Mr. Macgregor's letters, and had the pleasure of finding plenty of the down in the nest-hole; but alas! the bad name attaching to the birds had already induced one Macpherson, shepherd, to take and to destroy most of the eggs. We got wind of this, and called at Macpherson's house, a few miles further along the lochside, and again we were lucky in saving one of the eggs taken from the nest only a day or so before. Lucky, yet unlucky! When, in 1881, Feilden and I were at Loch Ericht fishing, we found these Goosanders had fled the old haunt, but we saw either one or two pairs nearer to the west end of the loch.

*N.B.*—It may be remembered that the next we hear of these birds was what Col. Drummond Hay said about seeing birds on Loch Luydon and on Loch Rannoch, *supra.*

Here ends, I think, as complete a history as is needed of the first recorded Goosander's nest in TAY.

Millais says nothing particularly as to these birds breeding lower down the Tay, but says: "A variable visitor to the district in winter and spring. Sometimes the Tay and Loch Leven (FORTH) are full of Goosanders, and in another year not one is to be seen."

And Millais' notes are so far borne out by the following from Mr. Charles Mackintosh, speaking of Strathbraan and district around Dunkeld at the date of June 1905. He writes: "Goosander—I have seen a stuffed male got on the Tay sixty years ago. A very few pairs now on the Tay in winter and spring."

During a drive along the right bank of the river Tay between Aberfeldy and Kenmore, in May 1905, I saw two pairs, or at least two males and one female, upon a shallow smooth reach of the river a little above Aberfeldy. We have seen that these birds have been known to nest in the neighbourhood of Kenmore and lower end of Loch Tay by the year 1890 (*ante*, p. 250, *auct.* D. Dewar).

Following close upon this observation, I have the information from Mr. Charles Mackintosh, subsequent to the above communication, that he saw "what he took for a brood of Goosanders on the Tay, about two miles above Dunkeld Bridge, and likely the same brood which had been seen by one of the fishermen, *but which he took for Cormorants*!" There is no doubt Mr. Mackintosh correctly identified them with his binoculars at a distance of about 150 to 200 yards, judging from his very exact description (*in lit.*, 24th July 1905). "Since then," he continues, "I have spoken to the keeper. He has seen them repeatedly, and has no doubt they are Goosanders, having served in parts of the north where Goosanders are more common. He is well acquainted with the species. I have not yet heard of the Goosander breeding on this part of the river, and so thought the above might interest you." *It does*; because the now well-known tendency of these birds to *follow the stream down*, and so in time extend their breeding areas, receives another strong illustration.[1]

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[1] ARGYLL claims the first record, but, curiously enough, that was also in 1871. That was in August of that year, when Mr. J. Graham, of James Street, Liverpool, recorded seeing two old Goosanders, accompanied by seven young, upon Loch Awe, whilst he was fishing there. His letter was published in the *Field* newspaper of July 29, 1871, and further account in the same of August 12, 1871.

### Mergus serrator, *L.* Red-breasted Merganser.

Common. Resident. Breeds.

The Red-breasted Merganser is not at present as abundant a nesting species as the last. Their dispersal, however, is not difficult to trace, and the line of its advances are from northerly, westerly, and north-westerly directions.

The first full clutch with down was added to the collection in the Perth Museum not before 1895. At that time it was considered not at all a common nesting bird within the TAY Basin or Strathmore. The clutch in question came from Loch Baa *in the north-west.*

But there is clear evidence in the late Mr. E. R. Alston's journals of the species nesting on the Black Water Lochs. When he was residing in Glencoe he obtained the evidence. This was in 1870.

Now, Don in 1813 merely mentions the Merganser as "occasional on the coast."

At the time of getting the Loch Baa nest mentioned above, Col. Drummond Hay had not heard of any nesting elsewhere within the TAY Basin.

It is still by no means abundant, and has not made such rapid progress as it did down the Spey Valley and other parts north of the Great Divide, nor has it appeared in such large numbers as the

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[1] I am able to add their appearance in pairs upon the upper and rockier portions of the river Carron above Denny (FORTH), in the spring of 1906. In 1875-6, in winter, large numbers frequented the open waters of Loch Coulter (FORTH).

Goosander anywhere in TAY; but I will not be surprised to learn of a heavy addition after it becomes better established in the remoter parts of the north-west.

At the time Millais sent me his notes, he spoke of it as a "scarce visitor to the Tay and Eden estuaries."

### Mergus albellus, *L.* Smew.

Occasional winter visitant.

It usually only appears in very severe winters. One, however, was obtained in full summer garb on Tents Muir district, and is now in the Museum at St. Andrews; but there is no date given in the list, nor in the particulars which have been furnished to me by Mr. Canch.

There is also one in the Montrose Museum which bears the legend, "Capn. Wright, Eden, 1837."

Col. Campbell claims to have seen, once only, a pair off Tents Muir shore (date ?).

In 1888 a female was shot at the Ponds, at Stormontfield, near Perth, on the 20th November 1888, by Mr. John Marshall, and is in Mr. Marshall's collection at Stanley.

Another is recorded as obtained on the Tay, near Seggieden, on 30th November 1890. This was only the second got in TAY proper to Col. Drummond Hay's knowledge, and the fifth in the whole district of the watersheds as defined by the Salmon Fisheries Commission, *i.e.* "extending along the shore of Scotland from the Red Head to Fifeness."[1] But there is another—a female—given in Mr. Small's Registers as sent by Col. Drummond Hay, which bears date of 2nd January 1891. It may be the same?

In 1893 one is reported from Kilgraston—a male—near the Bridge of Earn, and was preserved by Mr. Malloch, of Perth, and is in the Perth Museum.

Another male was got at Crieff (Hinxman's *Movements of Birds*) in 1895 (*Annals Scot. Nat. Hist.*, 1896, p. 144).

Millais records seeing a pair of Smews flying over the Lucky Scaup in February 1885. He says: "These were the only ones I ever saw."

Some are mentioned as visiting the lochs around Guthrie two winters ago by the Rev. Mr. M'Connochie, in his list drawn up for me in June 1905 (say came in the winter of 1903-4).

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[1] These boundaries were, of course, defined in the interests of the Salmon Fisheries, but the general principle of watersheds is adhered to.

## Order COLUMBÆ.

### Family COLUMBIDÆ.

**Columba palumbus, *L.* Ring-Dove.**

Old Gaelic name, *Colman choille*; and, *in err.*, *Smudan*, which properly belongs to the Rock Pigeon, or lit. the Cave Pigeon. Also it is called *Calmonell* or *Colmonelle*, but this is probably only equal to the above, *Colman choille*.

Abundant. Resident. Breeds. Receives great additions to the numbers which breed in Scotland from continental sources.

Great numbers are shot and trapped during winter and early spring. There are several professional pigeon-shooters, especially in the counties of Fife and Forfar, who have full permission from the proprietors to prosecute their calling. These men erect screens formed of reeds, and clear out spaces amongst the reed-beds and put down "stale" birds (stole-pigeons ?) amongst the coarse grasses. As many as would fill a corn-sack are in this way shot in a day, or rather within the time occupied by a single tide. I have given the portrait of one of the best-known professional pigeon-shots—Duffus, of Pickletillum, Fife, a well-known man in his own county and department. The best "bag" I have heard of was obtained by Duffus, as I have been informed by my friend Mr. W. Berry, of Tayfield, and amounted to 101 birds shot in one day as above described.

Many more are shot also at "stole-pigeons" in the Tay Valley, thirty or forty of a morning being not uncommon—and very pretty sport it is too!

In other places the farmers take very considerable toll of the great flights which are well known to pass over the Vale of Menteith (FORTH).[1]

They use "stole-pigeons," but not to the same extent as in many other parts. They simply conceal themselves under screens or huts built up under solitary trees which stand in or near the spring-wheat-sown lands, and trust to getting shots at the great flights which pass over at that season, and often make heavy bags. The practice is no doubt followed at many other places along the regular routes of their passage from the east coast to the west, which, however, only represents a very small proportion of the whole migration; and I believe that by far the heaviest phalanx turns southwards when they arrive over the land of the east coast. I have seen this marvellous arrival more than once; but upon one occasion it was so enormous as to attract almost universal attention upon the Links of St. Andrews. As the main flights arrived over the land, numbers were seen to stop in their flight, circle, and then plunge downwards, dropping after many spiral eccentricities of direction, and alighting on old remembered feeding grounds, no doubt. I have seen the same thing happen from huge flights of the Great Snipe in Northern Russia, when hundreds of these birds appeared on their spring migration, and popped down amongst the willow scrub. On such occasions we had nothing to do but land from our house-boat and shoot as many as we required—and right good they were "spatch-cocked"!

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[1] The Agricultural Survey of Perthshire informs us that dovecotes were rare in the Highlands; but in the lower parts of Menteith (FORTH), in the Carse of Gowrie, and about Cupar and Perth many existed at that date.

The old *Statistical Account* appeared to consider that it was questionable whether "our law authorising pigeon-houses is not in some degree contrary to public equity." It had been shown that a moderately stocked pigeon-house "will consume 2000 quarters of feed in the year."

It is worth noting that, while such complaints were rife, nothing is given in evidence about the damage done to farmers' interests as regards the Wood-Pigeons, because at that time their numbers had not reached anything approaching those of recent years.

Of late years, however, there seems to have been a considerable falling off in the numbers coming over, as well as those breeding in this country; and it is a very general opinion that Stock-Doves are increasing on our Carse-farms in the east of Scotland, and the Wood-Pigeons are not so numerous as formerly.

North of the Grampians, Wood-Pigeons do not seem to penetrate—at least during these migrations—so far west, though smaller parties are well known to do so, and it is becoming a commoner bird in the nesting season even in some of the Inner Hebrides.

Another, but not a sportsmanlike, way of killing Wood-Pigeons is practised in March, when keepers are netting their hen pheasants for the pheasantries. I have had as many as thirty or more in the house at one time obtained in this way. I never hesitated to accept such, as when game-birds had become out of season, these fine birds did able duty in the larder and on the table.

In the wilder parts of, for instance, Glen Ogle and the Moor of Rannoch they are not greatly in evidence, unless when berries are ripening, but on the fringes of these more barren spots they are fairly common.

I do not here enter upon the question of damage done to farmers' interests, as that has been often hammered out, and never to everybody's satisfaction. Mr. Robert Gray has spoken very fully of it in his *Birds of the West of Scotland*, and correspondence is endless in the pages of the *Field*, etc.

There is another phase of the life-history of the bird, however, which I desire to mention. In 1850 to about 1855, Wood-Pigeons assuredly nested in the east of Fife on the ground, and also in tall old whins, as I am assured by men I know, who would not be likely to make any mistake "even then when all was young"! I was assured of this in the very first instance repeatedly by my old friend Mr. J. R. Walkinshaw Cook, of St. Andrews. He scouted the idea that they were "more likely Stockdoves." "Maybe," he used to say, "but what I *know* is, they were Wood-Pigeons." I long felt sceptical, but others gave much similar evidence among friends in St. Andrews. I asked Col. H. W. Feilden whether he had any reminiscences of the Wood-Pigeons nesting under old whins on Tents Muir; and the following is the reply I received: "He had recollections of the old whins at Tents Muir, but not of the Wood-Pigeons. The whins covered a very considerable space, and were very late"(?). He continues: "If I had disturbed any Pigeons there I would have taken them for Wood-Pigeons, because at that time I was quite ignorant of the Stock-Dove." Mr. Cook always spoke of the Pigeons he used to find there as nesting either on the ground or (*i.e.* and) quite close to it in the thick whins. And we do know that Ring-Doves nest close to the ground at times—as for instance in the propped up branches which have been laid down for pheasant cover in quite bare plantations—witness an instance of this at Inverurie (*Annals Scot. Nat. Hist.*, Oct. 1904). I personally had reliance upon Mr. Cook's powers of observation as a boy when at Merchiston Castle School (and we knew our birds fairly well even then, though only bird-nesting schoolboys in the sixties). The negative at all events remains to be proved, or that they were Stock-Doves at that early date. Mr. Berry also thinks that he would have heard of any prior existence of Stock-Doves on Tents Muir—*i.e.* prior to about 1880—had such taken place.

### Columba œnas, *L.* Stock-Dove.

Formerly appears to have been unknown. Then it was recorded as an "exceedingly rare bird," and finally it became almost suddenly abundant.

There is no notice taken of it in any of the old *Statistical Account* records within the bounds of any of our sections; and Don makes no mention of it.

It is of course extremely probable that in some places the species may have been overlooked for a few years, but I cannot think that this has been a universal failing, or that the species could have long existed in such counties as Berwickshire, in the south of Scotland, or Perthshire, Forfar, or Kincardineshire, without having come under the observation of some capable naturalist in the time.

I have before treated of the expansion of the nesting haunts of the Stock-Dove in another place, and I take most of the following account from that article down to date.[1]

In the Valley of the Tay we have the earliest positive account of its nesting, when Mr. A. B. Brooke wrote to me as follows: "I first observed the Stock-Dove seven or eight years ago—say 1875 or 1876—when one flew close past me one day in spring; but for some time I did not find their nest, and it was not till 1878 that I succeeded in doing so. I sent a note of this to the *Ibis* (1879, p. 112). I took one of the young birds from the nest, but it escaped out of the cage after I had kept it about a fortnight. In 1879 I was delighted to see the old pair back again, and they again bred in the same rocks, about fifty yards from the site of the old nest, and brought out their young ones, one of which I took when fledged and sent to the Zoological Gardens in London. Their nest was built in a rocky face of a hill, about, I should say, 1000 feet above the level of the sea, in a hole under some rank heather or what was very like a rabbit's old nest."

Also in Perthshire, Col. Drummond Hay, in his *Notes on the Basin of the Tay* (1879-80, p. 33), instances several obtained in, or prior to, 1878, including the above, and a bird seen by himself in the Carse of Gowrie, probably breeding in the Glencorse or Balthayock woods, and two examples in the southern parts of the county (*auct.* J. J. Dalgleish)—FORTH. Lack of accurate observation, I certainly think, is to blame for the want of more continuous records —say from the date of about 1875—and not absence of the birds, *i.e.* between 1875 and 1883. I had indeed learned that these birds had appeared in immense numbers in the Carse of Gowrie in spring 1881 (say middle of April), but that in 1882 they were very scarce (G. H. Baxter to the late Mr. J. R. Cook). I do not, of course, go into the particulars of their occurrences in FORTH or other parts of Scotland

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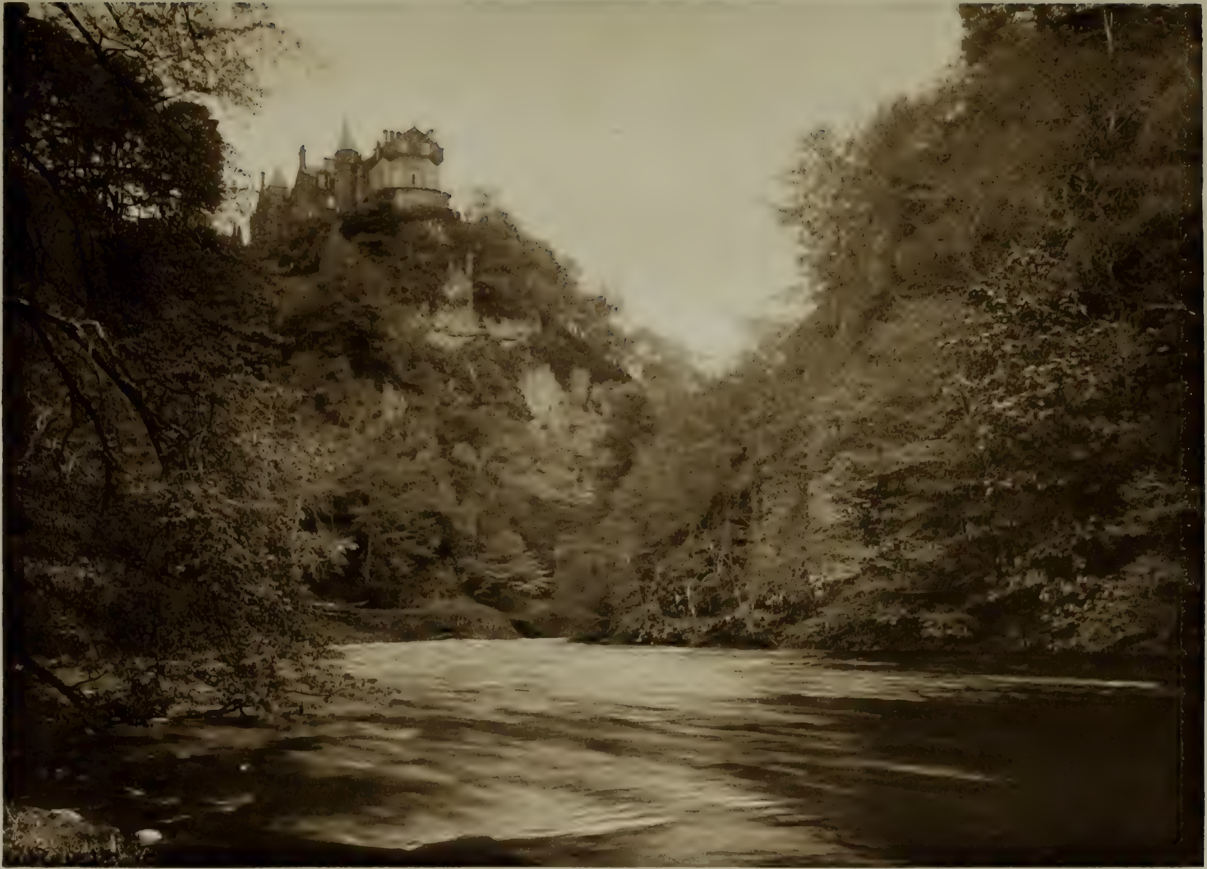
[1] "On the Stock-Dove (*Columba œnas*), with remarks on its extension of range in Great Britain." Read Feb. 1883 (*Proc. Royal Phys. Soc. Edin.*, 1883, pp. 241-54).



CRAIGHALL, BLAIRGOWRIE.

EARLY NESTING PLACE OF STOCK DOVES.

CLOSE BELOW THE TERRACE

in this place. For such details as were at command in 1883, I refer my readers to the monographic article (*ut supra*).

There is a somewhat earlier account of a possible appearance in Fifeshire, if we admit that the species was that species of Dove which nested *under* furze-bushes, or *in* the bushes, on Tents Muir as long ago as the sixties. But I have said all I can say as to this under Wood-Pigeon.

At the date of 1873, as I am informed by Dr. Thomas F. Dewar (*in lit.*, December 16, 1873), only two had been obtained in the Arbroath district. Even in 1887-8 it was designated "exceedingly rare" in Col. Drummond Hay's paper, and was admitted on the strength of Mr. Brooke's record as above given in the vicinity of Dunkeld. But under date of November 24, 1886, writing to Col. Drummond Hay, Mr. J. Wilson, Coupar Grange, Coupar-Angus, when sending two specimens, mentions that four years ago (say 1882), he "had shot several of them about the same place," viz. in the parish of Bendochty; but during the three years previous to that (say dating back to 1880 or 1879), when he had just come to the farm of Grange, he had seen none.

Meantime these birds had become common in the south of Scotland, and especially in Berwickshire; and as many as five nests were known on the Middleton estate alone (Belford) in 1880.

As I have said, I am willing to admit a possibly much earlier advent and residence of the Stock-Dove within TAY, but I only pay attention to absolute records, and, *so far as I know, such are awanting*.

Thus, it may be absolutely true what Sir James Clarke Rattray told Col. Campbell, viz. that "as long as he can remember he had known the Stock-Dove at Craighall"; so that it "may have been known, though not recorded," long before 1878. So Col. Campbell wrote to me, *in lit.* September 6, 1899. But, as Col. Campbell adds: "It is most extraordinary that neither Col. Drummond Hay nor myself had heard of it there, though we both have been up to Craighall until the last five or six years" (say till 1894 or 1893).

However true all the above may be, there can be scarcely any doubt that at last a great and sudden rush took place, and must have been the result of quick and great congestion at former centres, probably both at home and abroad. I will endeavour to show this later.

I am much obliged to Sir James Clarke Rattray for kindly assisting Mr. Norrie to obtain the accompanying view. The nest was placed close below the terrace of the castle in the face of the rock which overlooks the great gorge of the Ericht river.

In 1885 a pair were presented to the Perth Museum on the 12th November, obtained at Blairhoyle (FORTH) by Mr. O. A. J. Lee. (I only mention it here as useful in the matter of continuity of dispersal.)

Mr. Marshall speaks of it as having been principally observed about Stanley during the last twenty years, which, taken back from the date of his communication (2nd February 1901), would be begun about 1881; and he adds, "It is apparently becoming common." Specimens in his collection date—"Male. Stobhall, 17th May 1884, got by Thos. Campbell"; and "Male. Ferneyhill, Stanley, 6th May 1893, by David Fenton."[1]

No satisfactory evidence had reached me of its occurrence in Kincardineshire to date of my paper in 1882; but Mr. Simpson wrote me in 1899 that "Mr. Milne (Auchenblae) had got the eggs in Fordoun Parish." Except this, I have no corroboration of its appearance even *yet* in that county. And even this hardly bears scrutiny, because Mr. Milne himself wrote me after that date (of Mr. Simpson's writing) that he—Mr. Milne—"had not been able to identify one!" Auchenblae, as already said, is about ten miles inland from the coast-line of Kincardineshire.

It would appear with considerable clearness that a somewhat curious check upon their advance or arrival upon this east coast has taken place to localities south of the dividing range of the Grampians.[2]

Of its advance north along our east coasts I will speak further on; and, having respect to the *evident check* which is shown in Kincardineshire and East Forfar, where it is sufficient now to point out it has not yet—in 1905—taken firm hold, though it took possession of St. Fergus Links (DEE) as early as 1883!

Of its advances more to the inland portions of our area, though gradual or less noticed (?), a steady if slower habitation there has been accomplished. As a rule, both old and young leave these inland sites so soon as the young are able to fly and look after their own interests. About this time old and young repair to the Carse-lands; and a very patent increase takes place of the numbers seen at these better feeding-grounds on the Carse-farms. But in the course of about ten days or a fortnight the old birds return inland to the same nesting haunts, and repair or clean out the old holes or *boxes* (such as I have set up for their accommodation, in old lime or other thick, bushy trees, or in steep sloping banks). Then these old birds prepare to rear another brood.

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[1] Mr. W. Evans gives much earlier nesting data of Stock-Doves in Scotland at Dalkeith Park (FORTH) and in rocks on the river Esk, 1874 (*Annals Scot. Nat. Hist.*, 1896, p. 253). I see no reason to doubt the accuracy of his correspondent's information; and, no doubt, when he comes to adduce all his statistics, Mr. Evans will, in his own good time, tell us still more about it in districts south of the Firths of Forth and Clyde.

[2] To the north again they reappear, as Mr. Sim shows in his *Fauna of Dee*, which it may well be desirable to consult here.

At the present time the Stock-Dove is a more abundant species than the former-time Wood-Pigeon—at least so it is often reported to me by observant gamekeepers in my own district of central Scotland, and by others who have frequent opportunities of making observations. This change has taken place between about 1890 and the time of writing (1905), and I think is even more pronounced by 1906.

There is a possibility that the Stock-Dove bred as far west as Rannoch at the date of 1901, but I have not satisfied myself of the fact.

Even in the districts around Callander they were not considered common by 1885, nor lower down on the fringes of the Vale of Menteith. A pair were shot on 12th November of that year by Mr. O. A. J. Lee, and presented to the Perth Museum, *quite as rarities.* (See above, p. 262.)

By 1891 they had penetrated, however, to the lower end of Loch Tay, by evidence afforded by Mr. W. Evans, who saw the birds on the north side of Drummond Hill in summer, and was assured that they bred there that season.

In 1896 Stock-Doves do not seem to have put in much appearance in the north-east of our area, as Mr. Milne had *not been able to identify one* around Auchenblae, where, it is almost needless to say, there are abundant sites in every way suitable to their requirements. This forms a curious blank in their progress towards the north, of which I have already spoken.

The Stock-Dove is omitted from the Rev. Mr. M'Connochie's list from Guthrie.

The Rev. H. A. Macpherson notes that "Col. Colquhoun told him that a few Pigeons, which he called 'Rock-Doves,' are to be found in Glen Garry" (H. A. Macpherson's MS., but no precise date is appended).

Returning to the north-east, none had apparently reached the county of Kincardine to date of 1893, and the first absolute record from the east of Forfarshire is by Dr. Dewar, where two were got west of Arbroath (*Annals Scot. Nat. Hist.*, 1894, p. 115).

By 1894 Col. Drummond Hay had no reliable evidence of their occurrence, even at this late date, in the Carse of Gowrie (except the one previously noted above), but there was evidence of their appearance on the Almond—inland—and at Blairgowrie (*auct.* W. Berry).

At Blackport (TAY) they seem to have been established for some years, and were nesting commonly in rocky slopes and precipices at Cardney (*fide* Atholl Macgregor). No doubt he was bearing in remembrance the original records as given above, Cardney not being very far removed from the site of the earliest record (*supra*).

The trend of their advances appears to have been for the most part from the south-west and south and south-east—or, more generally, from south to north between FORTH and CLYDE and the north of Perthshire, but centrally and strongly, rather from south-west to north-east. Whilst the earliest accounts of its breeding reached us from inland localities in the centre of Perth by, say, from 1875 to 1878, the greatest increase was evident in the eastern Carse-lands *in winter*, and then they appear to have penetrated first to suitable nesting haunts more inland as the breeding season advanced. It is seen at the present day that they return to the better feeding of the Carse-lands as autumn advances and the breeding season passes by. Though this is so, however, they do not penetrate *far* to the west *yet, if indeed they ever will.*[1]

As I have incidentally taken notice of, Mr. James Duffus, professional pigeon-shot, Pickletillum, Fife, remembers sending one to the British Museum for identification about 1883. But they did not appear there in any force till about 1892. (Compare with my notes in MORAY volume, p. 127, and Mr. W. Berry, Tayfield, Fife, adds evidence to the same effect.) There are, however, a few stray records from further inland localities in Fife as far as Blair Adam, near Kinross (FORTH), etc. I ask the question: Did these come from still further inland or more south-western localities? We have earlier—indeed, amongst the earliest—accounts of their nesting from much higher up the firth, viz. at Culross and Tullieallan (*auct.* Mr. J. J. Dalgleish, 1878). (At this place also compare the accounts given in our MORAY volumes.)

At the present time, and during the last five years or more, a very decided increase in these nesting birds has taken place inland, and indeed these Stock-Doves bid fair almost to supersede the Wood-Pigeon. I refer most directly to these central districts of Scotland,

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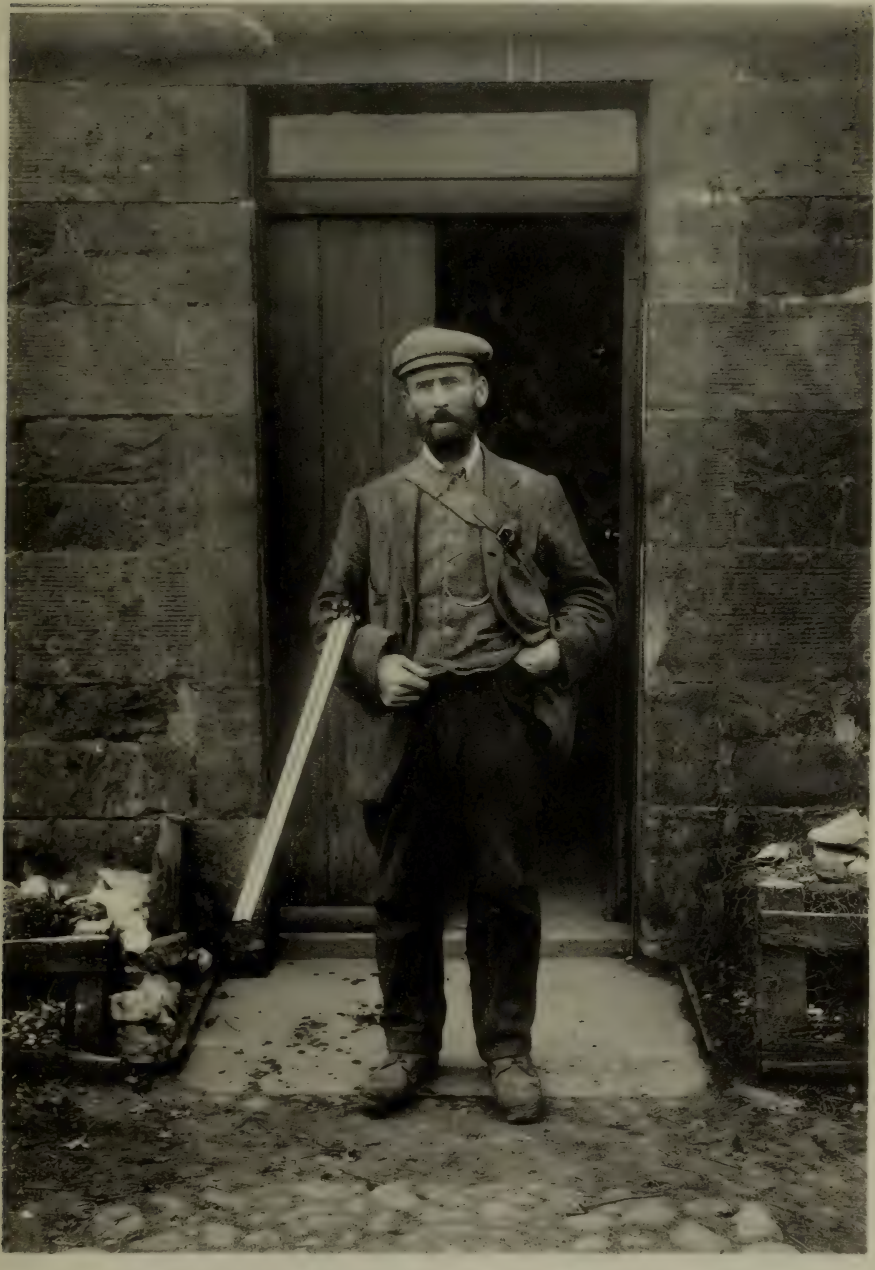
[1] Food inducements are not so great there as to induce any but stragglers, or those which may be forced by great congestion, to strike out to the west. I therefore always, as yet, have looked upon records from the wilder west as scarcely to be seriously accepted without absolute proofs. Thus, as yet, I hear nothing but negatives from Glen Ogle in the south-west, though, if once found out by the birds, I see no reason why a certain proportion should not find sufficient accommodation both in nesting sites and in food supply. (See under species in *Fauna of North-West Highlands and Skye.*)



WILLIAM DUFFUS OF PICKLETILLUM, FIFE.

in the glens of the central hills and "dryfields" lands of Stirlingshire, and in the Vale of Menteith, and beyond as far as the roots of the Grampians about Callander, though I am not aware that many have as yet succeeded in penetrating beyond the Pass of Leny in that direction. I do know, however, that they have penetrated well up the Forth Valley as far as Aberfoyle, and have appeared in cliffs between Aberfoyle and Loch Katrine in the vicinity of the new road which leads across from Aberfoyle to the Trossachs. I will not venture to attempt to decide whether these last have found their way by that route, or by any other, more directly through TAY from the east.

Perhaps I may be permitted here to refer once more to my previous communication, already quoted, and ask those of my readers who are sufficiently interested in "distribution and dispersal of species" to *read back.* Everything points to an ever-increasing pressure from the south towards the north, at least so far at present as the Great Divide (or approaching to it). When inland localities become flushed, then there is abundant evidence that the Stock-Dove can—and does—accommodate itself to the friendly companionship of the rabbit of the sandhills; and so the ground in time is all taken up. As for any migrational instinct—*the word will slip in wrongly sometimes*—or migratory necessity, that will come to be developed later when the necessity arises, and all grounds become congested. *Birds do not become migratory until they are forced to become so!*

Before quitting the article upon this species, perhaps I may be allowed also to ask my readers to refer back to what has been already written of it in our MORAY volumes, and in all places north of the Grampians. The dispersal there I believe to have been induced from a different centre, and to be due to congestion at some Continental centre or centres. The same impetus to increase which had congested the breeding quarters of England had, in all probability, also acted in certain zones of the greater nesting haunts on the Continent; and the same impulses had acted and made those of European, *i.e.* Continental origin seek wider fields, and find an escape from a condition of things which was fast becoming intolerable. I have wondered, at times, if all the Lemmings which swarm periodically in Scandinavia were able to reach our shores, what vole-plague would compare with their invasions? How else can we explain that phenomenal invasion of the Tartar host of Syrrhaptes?

If we do not grant that there was a different centre for the invaders found north of the Grampians, then how can that strange hiatus, or blank, or slow filling-in of the coast counties of Forfar and

Kincardine be accounted for? And also, how can the earlier dates which, it has been before pointed out, occur in their dispersal north of the Divide and north of Aberdeen be explained? (Read back; refer to MORAY dates and to DEE dates, and consult my previous papers, and consult Mr. Sim's *Dee.* I fear I have occupied too much space here in mere reiteration, which I well know is a weary thing to do, but I also find that too little attention has been given by many writers, in recent recording, to what has been said and done before.)

But to save others trouble in verifications, I will yet say, lastly, the prominent features I endeavour to attract attention to are:—

(1) The vast increase in central Scotland, and its suddenness.

(2) The scarcity of returns to date from Forfar east and Kincardine.

(3) Their rather late arrival at Tents Muir (see here a second paper of mine, *Annals Scot. Nat. Hist.*, 1894, pp. 3-8), which dates 1892, except one bird on record, sent to the British Museum about eight years before by Mr. James Duffus, of Pickletillum —say 1884.

(4) Absence, or nearly so, in the Carse of Gowrie and the lowlands up to December 1893 (Col. Drummond Hay, whose correspondent says of them: "They appear from a southerly direction, and if disturbed always fly back by the same route").

(5) Their abundance on the links of St. Fergus to the north of Peterhead, where, as Mr. Sim tells us, they were *first seen in Dee* about eight or nine years ago (say 1884), and at present (1904) there may be some thirty or forty pairs there (*auct.* Mr. George Sim).

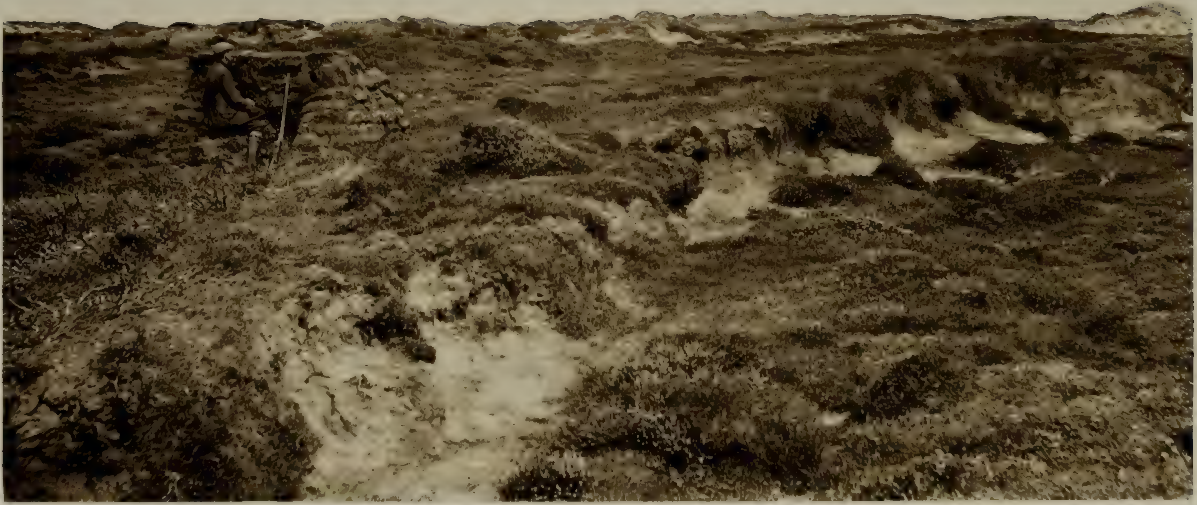
In my paper last mentioned I have worked out these arguments already, and will now close this long article in the present place.

### Columba livia, *Bonnat.* Rock-Dove.

Old correct Gaelic, *Smudan,* as above (see under Wood-Pigeon). It appears evident that at some time or other a confusion existed amongst Gaelic-speaking people between Rock- and Wood-Pigeons.

Fairly common on the coast. Resident. Breeds. But it is much more difficult now to get pure-bred birds here than formerly, as for very many years and generations they have mixed with the dovecote Pigeons, and all sorts of colours are seen.

Mr. J. Milne quoted for me from a copy of the *Black Book of Kincardineshire,* now a very rare volume (I have since obtained a copy after some trouble). It refers to the caves generally, and goes on to say: "The most remarkable one (cave) is named 'The Long Gallery,'



TENTSMUIR.

STOCK DOVE'S NESTING PLACE IN RABBIT-HOLE ABOUT TWO INCHES TO LEFT OF RIGHT MARGIN.

FRINGE OF SAND-HILLS IN DISTANCE.

and is about one and a half miles south of Stonehaven. It enters the perpendicular face of the cliff, which is about 150 feet high, and the cave is 30 feet wide, gradually narrowing to the far end, where it also comes out in the face of the cliff. It can be traversed through its whole length, about 200 yards, in a boat at low water."

There appeared a note in a recent number of the *Zool.* (July 1905) which is justly queried by the editor, about Rock-Doves (*sic*) nesting in rabbit-burrows near St. Andrews and elsewhere in Fife; needless to say this is an error.

Mr. W. Berwick says of this species: "Found in the rocks near St. Andrews, etc., but not common."

#### Turtur communis, *Selby*. Turtle-Dove.

Rare. Occasional visitant in autumn and winter.

*Not of great rarity* as observed by Col. Drummond Hay in the Carse of Gowrie (*Scot. Nat.*, vol. iii. p. 290).

Marked as an occasional visitor by 1877-8. One shot, 1871, at Balmano, near Perth, by James Dow. "Another shot ten years ago" (*auct.* Mr. P. D. Malloch, *in lit.*, 24th December 1878); and he adds: "I have it beside me now." This would therefore be about 1866 or 1868.

One was obtained on 1st October 1896 ten miles north of Blairgowrie.

Dr. Dewar marks it in 1904: "Rare visitor to east of Forfar."

Occasional visitor in north-east Fife. Mr. W. Berwick tells me one was shot near Boarhills in August 1863.

## Order **PTEROCLETES.**

### Family **PTEROCLIDÆ.**

#### Syrrhaptes paradoxus (*Pall.*). Pallas's Sand-Grouse.

Spasmodical. Occurring at long intervals. Sudden invasions.

I need only to refer to such a well-known paper as Professor Newton's,[1] and to mention the specimens which were obtained within the boundaries of Tay and Strathmore, and which he records arranged, in his paper, geographically.

These are as follows:—

No. 121.—Muchalls, Kincardineshire coast, two out of about fifteen, 28th May 1863 (*fide* Sir William Jardine, *auct.* Professor Dickie, *Edin. New Phil. Jour.*, p. 167).

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[1] "On the Irruption of Pallas's Sand-Grouse (*Syrrhaptes paradoxus*) in 1863" (*Ibis*, 1864, pp. 185-222, with a sketch map).

No. 122.—Eccleshall, two, 15° W. long. Two shot out of about twenty, 22nd May (Mr. S. Yates, *Times*, 28th May 1863).

No. 124.—Six shot on the links about the first week in June 1863 (*Edinburgh Evening Courant,* 13th June 1863; Col. Drummond Hay, *in lit.*, 15th June 1863).

Regarding the causes of this phenomenal invasion, I will simply refer to what has been written and previously epitomised by Professor Newton in the above-mentioned paper, and say that I implicitly accept the deductions he himself expresses, viz. that it "resulted from ordinary increase." Indeed, I may even perhaps make bold to say that it is an illustration of a great natural law, applying to many other irruptions of species, *though not of all.* In fact, it may well be what I have attempted to express by the phrase "congestion at previous centres," and "finding the direction of least resistance."

Exceptions are found in the irruption of such a species as the Little Auk, caused by local and sudden gales of wind, or circumstances close to the normal winter quarters of the birds' distribution. But even in this case, the Little Auks found the "way of least resistance," as, I think, may be gathered from the article by Mr. W. Eagle Clarke.[1]

I think that the exposition of this "natural law," if law it be, and which I, at least, look upon as a very powerful cause of these initiatory movements of many birds on migration, requires no further treatment at my hands in this place. Pages 219-22 of Professor Newton's paper appear to me to carry conviction.

Much, however, remains to be observed and proved as regards these so-called "lines of least resistance," when they come to be applied to many different species; because a selected route by any one species may not be that selected by another. In other words, what may be the "line of least resistance" to one bird, may be to another the "line of greatest resistance." And this may well be found to apply not only to a species, but also even to individuals of the same species. (I eliminate from this statement the possibilities connected with sub-species. That opens out abundance of study for the future.)

Passing now to the second and greater invasion, I first "take up the tale as told to me," in the material collected, and in the digest of it by the late Rev. H. A. Macpherson, the original documents being still in my possession.[2] And, at the same time, to call attention to the other careful summary by Mr. W. Evans of the results of the same phenomenon.[1]

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[1] *Annals Scot. Nat. Hist.*, 1895.

[2] *The Visitation of Pallas's Sand-Grouse to Scotland in* 1888, etc. (pamphlet): (Porter, 18 Princes Street, Cavendish Square, London, 1889).

I confine my attention, as before, to our present areal boundaries for the most part; but I cannot refrain from quoting one remark of Mr. Macpherson's Introduction as representing a very salient point indeed as regards "movements of birds": "Wherever a Sand-Grouse occurred in 1863, there, a score or half a hundred appeared twenty-five years later." That is to say, the birds followed, with slight deviation, the same routes which their predecessors took twenty-five years before. But the earlier immigration seemed to spend its force in the east counties of Scotland to the south of the Great Divide of the Grampians. These are trenchant sentences. The second and greater invasion "affected the Moray Firth, Caithness, Orkney, Shetland, and the Hebrides, far more than the east coast of Scotland which lies to the south of the same Great Divide,"—another trenchant sentence, if read in the light of other information as regards migration!

Now, coming to the more immediate duty before me in this volume. The authorities for TAY and Strathmore, quoted by Mr. Macpherson, were as follows: Col. Drummond Hay; and Messrs. Speedie, lessees of a portion of Tents Muir; Henderson of Dundee, and others.

Going back to 1863, one was reported from Perthshire—an adult male.

Seven or eight were obtained on the Forfar coast (see *ante*) in 1863. (I must here premise that returns in 1888 were not so full or so satisfying as in 1863.) I now take up those of 1888:—

A female was shot out of some twenty-five or thirty on May 21, and sent in to Mr. Henderson, Dundee.

On 28th May 1888, a male was shot out of three at Loch Rannoch.

Other three were obtained near Castle Menzies, Abercairney, and Strathearn before the end of May. On the 12th June 1888, a female out of a flock of forty near Crieff.

One was picked up dead, but quite warm and freshly killed, on the railway near Arbroath, and the birds appeared upon Tents Muir first in small flights, and later in the year in pairs—as we are informed by Mr. Henderson and others.

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[1] "Notes on Pallas's Sand-Grouse, etc., in Scotland, during the recent great Westward Movement of the Species" (*Proc. Royal Phys. Soc. Edin.*, 1889, vol. x., part 1, pp. 106-26).

Thus there appears to have been either want of observation along the extreme eastern boundaries, or otherwise a general scarcity of birds. I incline to the latter supposition, or possibly to both combined.

In conclusion, it is almost unnecessary to point out that there is not sufficient evidence about their having bred upon Tents Muir, as Dr. Sclater, who examined the supposed young birds shot there, "could find no traces of immaturity, but rather that the birds sent were simply moulting." There have been no perfectly reliable accounts of the birds nesting in Scotland besides the one fully proved case on the Culbin Sands of Moray. There are other records certainly *which point to an almost certainty* that others either laid eggs, or were found to contain eggs almost ready for extrusion (see Mr. Macpherson's paper, part ii., "Breeding," pp. 19-27); but at this date it would serve no useful purpose to further discuss that record, and one or two more, of which we have note.

Desirous, however, of receiving information at first hand, I asked my friend Mr. W. Berry to interview John Fowlis, and the following is the local account given: "Sand-Grouse were seen by several parties early in spring—April, I think. They lived first on Fetters (a small farm on the edge of Tents Muir, adjoining Scotscraig), but afterwards they made their home on the sandy grass-fields to the east of the Patchkiel and Fettersloch Woods. They were seen there all the summer. There were about seventy in the largest 'covey,' and about twenty in another, and there were some small lots as well. I was not down at Tents Muir at that time" (he was busy with the young pheasants, adds Mr. Berry), "but old John Jolly told me he found a Sand-Grouse nest with one egg. The nest was a mere scrape in one of those sandy fields, and the egg was a little smaller than a Wood-Pigeon's, *and blue.*"

Mr. Berry, quoting John Fowlis, continues this account as follows: "I first saw them when shooting Partridges with the Admiral, towards the end of September, I think. He shot three and I shot two. He cut off the wings for ladies' hats, and did not keep the bodies. They left sometime about October, I think."

Mr. Berry continues, on his own account: "Thus far John Fowlis. His information, you see, lends little or no colour to the theory of the birds having bred on Tents Muir in 1888 at all; and as regards the other statement about young birds, we have already disposed of that, *supra.*"

I have to thank Mr. Berry for the general view of Tents Muir herewith given as representative of Sand-Grouse ground similar to what I failed to illustrate in the volumes on MORAY of the Culbin sandhills. This view illustrates also much more in connection with Tents Muir, such as the scene of the great success in the introduction of Red Grouse to the district, and many other points mentioned in the text, such as the nesting holes of Stock-Doves, etc.

Many were seen moving up Strathearn and Strathtay in the spring of the year 1888, besides those obtained, as mentioned above, at Loch Rannoch, and a small flock was observed on the east side of the Ericht river, near the head of that loch.

There is also one in the Museum at St. Andrews from "Tents Muir, June 1888," presented by Mr. Pentland Smith.[1]

One, which was referred to by Mr. W. Evans, and quoted by Col. Drummond Hay, and two others which were in Mr. Small's (of Edinburgh) hands, are recorded (*Proc. Royal Phys. Soc. Edin.*, 1888-90, vol. x. p. 113).

I see by the list of the contents of the collection in the Montrose Museum that there are two there which bear the dates July 1863, and June 13, 1888. One of these was got on Montrose Links—a female—and is doubtless one of the six catalogued by Professor Newton, as above stated.

Mr. Horn first drew my attention to one "sent in a hamper of game from Perth to a Mr. Ruthven, game-dealer, Liverpool, and which is now in the Derby Museum." Mr. Horn adds, "but it is not known from what part of Perthshire it came." The date of this one was 1863.

The same—*i.e.* if there be any confusion—or another, was "sent in a hamper *to Perth*, and was purchased by Mr. Littler, and presented to the Perth Museum. The exact locality is not divulged" (see *Zool.*, 1863, p. 8659).

## Order **GALLINÆ.**

### Family **PHASIANIDÆ.**

**Phasianus colchicus, *L.* Pheasant.**

Introduction of very long standing. Swarms, but greatly as laid down or artificially reared. Resident and breeds, but in many districts would gradually become extinct if not kept under artificial conditions. In others, however, the Pheasant appears to thrive under natural conditions, at least at the present time, and nowhere is this more evident than in some of our western isles and on our milder west coast, and that often where one would least expect them to do so. I may here instance the islands of Raasay, Rum, and Eigg amongst other isles and west-coast localities.

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[1] Talking of the birds at St. Andrews, I myself saw twenty-five skins of Pallas's Sand-Grouse in a drawer of a cabinet; but these were not killed at or near St. Andrews, but were shot out of large flocks in a northern island of the Orkneys. These were shot by two friends of mine—both since dead.

There is no old true Gaelic name for Pheasant, so far as I am aware.

The old *Statistical Account* tells us how the Pheasant was common some years before at Dunkeld, where they had been introduced by the Atholl family; and again: "Attempts have been repeatedly made to propagate Pheasants, but always in vain. When first sent out they are tame and sluggish, and fall an easy prey to foxes, pole-cats, etc., which abound," *i.e.* in Dunkeld parish (vol. xx. p. 439). But long ago most of these difficulties had been overcome, as is well known to game-preservers and sportsmen. These early attempts at introductions were made about 1793, and the birds were stated to have nearly died out by 1798.

*Obs.*—Golden Pheasants, as is well known, have bred wild in several places (*i.e.* of course from hand-reared birds), amongst others at Drumtochty, etc., and some were still surviving at date of 1896, but I cannot enter here into the introduction of other species. I must leave that history to Mr. Tegetmeyer. Many are *mistakes*, and none, I fancy, are very acceptable to the present generation of sportsmen, as certainly they are not acceptable to the naturalist unless as aviary birds. They may be handsome, indeed, but some at least are erratic and "*poisonous*" birds in a preserve. Let us hope they will continue to be kept only in confinement!

I may be allowed to mention here that about the same time that Pheasants were introduced at Dunkeld, my grandfather likewise endeavoured to get them acclimatised here, at Dunipace (FORTH); and I can well remember the aviary which extended round the outside of the east wing of the old house facing south and east, before that wing was pulled down and a taller addition was made by my father in the year 1857. I was always assured by my mother that these were the first attempts made in this county, but in this it is possible I, and she too, may have been mistaken.

But we can of course go much further back in chronology for evidence of the presence of Pheasants in Scotland. Thus, as early as 1594, there was passed a decree for the protection of all the king's "forrestis, parkis, hainings," etc., and of "hartis, hyndys, fallow-deer, *phesant fowlis*," etc.; and there were other similar mentions made about that time.

### **Perdix cinerea,** *Lath.* **Partridge.**

Old Gaelic name, *Cearc thomain* (old *Statistical Account*, xvii. p. 249). This is a name—like so many Gaelic names—admirably descriptive of the habits and haunts of the Partridge, as it would be known in the past to most Highlanders both in our present area and among the further and narrower glens of the Highlands—such as around Aberfeldy, and the upper reaches of Tay and its tributaries, and elsewhere that it deserves special mention. The meaning of the name is "The cock or hen of the Little Mounds."

"The Partridge has become much more numerous in the upper valleys, extending even to the edges of the moors, due to the greatly increased areas opened up to agriculture—say since 1825 to 1877 or so. But it has apparently correspondingly decreased in the lowland districts, or many of them, due to the drainage and filling up of ditches, and causing a scarcity of water." Such is Col. Drummond Hay's account in 1880; and though there may be probably other causes, I am inclined to give the above reasons for the increase on the one hand, and the decrease on the other, considerable weight.

The Partridge is still abundant in the east of Forfar, and indeed through Forfar generally; and we might expect this, because the foothills of the eastern Grampians overlooking the great stretches of Strathmore undoubtedly offer splendid holding ground with their knolls (*tomains*), well-watered valleys, abundance of gravelly "grit," and wealth of wild seeds and fruits and insect life, which latter again is in no small measure dependent upon the richness of the botany of these slopes and valleys, not to mention that these slopes "lie fair to the sun," and a short flight will convey the birds often to a change in diet when required.

But again in the south-west of our district—as, for instance, around the head of Loch Earn and in the defile of Glen Ogle—Partridges are scarce, though near at hand in FORTH and south of the watershed they are abundant. This too is to be expected, of course, as in all isolated glens and uncultivated wilder places, unless the geological conditions affecting the botany and giving foothold to suitable wild seeds, etc., form together a sufficient inducement to the species. There are quite patent exceptions to this rule, as may well be exampled by certain of our western islands—such as, for instance, Colonsay of the Inner Hebrides, and some few places on the west coast; but if the causes be inquired into carefully, it will be found almost if not quite without exception, the soil and its seeds are the direct reason for their unusual numbers. Many introductions have been attempted to places in the west and to some islands, which have utterly failed, and have been put down as entirely due to the great rainfall and sodden soil and *want* of agriculture; but I think if the causes be more carefully gone into it will be found as I say: the causes are a combination of these along with much of other local influences. Much of this would be worthy of study before such similar attempts are made. See under Grouse on Tents Muir, where, if these matters had not been intelligently attended to, I certainly think the introduction of Grouse to these sandhills would not have been so perfect a success as it has turned out to be.

Of large "bags" of Partridges many instances could of course be given, and there is no doubt that the sloping and sunny sides of the upper Tay valley holds many advantages for the species, and large bags are made there, while the similar grounds in the east are almost equally as productive—if, indeed, the latter do not surpass the former. I have seen good bags made in the neighbourhood of Aberfeldy—in 1879, the same year in which I saw the Cuckoo in October—and I have heard of really wonderful bags made in the same district, as also along the shores of Loch Tummel. To give quite a modest example of this, I quote a letter I had from Col. Drummond Hay, who extracted from his old game-books the following entries: "In 1855, self and friends, on 14th Sept., 40 birds; in 1856 (two guns), on 1st Oct. 14, on 14th Oct. 27; in 1857 (two guns), on 22nd Sept. 62 birds, and on the following day 41 birds; or 51½ brace in the two days—a thing," says Col. Drummond Hay, "I could no more expect to do here, *i.e.* in the Carse of Gowrie, than I could fly." The above bags were made on Loch Tummel side. The date of his letter to me was 3rd November 1885; and even more extensive operations could be quoted.

That curious variety of Partridge, which struck the late Sir William Jardine as so extraordinary that he named it *Perdix montana*, occurs at times with strange persistency in some districts of the north-east of Forfar and Kincardine, whence I have had several specimens at one time. At Glenbervie, for instance, General Shaw obtained them on more than one occasion, and it has been occasionally shot also in DEE, while I have heard of others in several other parts of the same area (see *Proc. Nat. Hist. Soc. Glasgow*, 1876, p. 77).

That other variety in plumage also in which the "horse-shoe" is white, and the plumage generally paler, occurs in the same district, but this variety seems to be of more general occurrence than the last mentioned.

Mr. J. Milne relates a curious incident: "A Partridge had the misfortune to lay her eggs on the top of a mole-hill, and a quantity of them disappeared down the hole. A keeper came to know of this, and he succeeded in recovering them, and then filled up the hole with stones and repaired the nest; and then there was no more trouble."

Millais remarks upon the small dark form of Partridge found upon the skirts of the moor in the following terms: "There was a covey of Partridges that lived at all seasons close to the bog at Murthly. They never left it at any season, and were small and dark in colour. A white-winged covey frequented Rohallion for some years, and I shot a brace of them. Strathearn is the best Partridge country in our area; and I have often taken part when eighty and even ninety *brace* were killed in the day (walking)" (*sic*).

I have had accounts of almost as wonderful bags shot further up the valley of the Tay—at Grandtully, for instance—but I have no minute authentication of these latter bags.

### Caccabis rufa (*L.*). Red-legged Partridge.

I have been informed that this poisonous bird—I mean poisonous as regards its interference with our native species, and an undesirable alien—was introduced one season some years ago in the neighbourhood of Guthrie. I have not heard what success attended this inconsiderate action; and I can only hope that they have all died. In face of all that is known of its undesirableness—say, in Norfolk and Cambridge, and the eastern counties of England—surely such a mistake might have been avoided.[1]

I have lately learned—since the above was written—from Mr. M'Connochie that a pair are still occasionally found in different parts of the county. Let me implore that the keepers be instructed to kill them out utterly.

I find that Mr. W. Berwick has the note regarding this species, "Occasionally found," but I am not aware of the particulars.

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[1] I once heard of an even more fateful proposal, viz. to introduce American Jack Rabbits into Banffshire. This was, I heard, projected by the tenant of the shootings, but fortunately came to the ears of the County Council in time to have that little game frustrated. I hope the proposal was made in pure ignorance; but even if that was the case, the fact only shows how careful we in this old country should be when drawing up leases of shootings. If it was proposed as a joke, then all that can be said for it is—it was a very silly one.

### Coturnix communis, *Bonnat.* Common Quail.

Evidence of former abundance. Now of uncertain visitation and breeding. There is considerable evidence that Quails were far more abundant in Scotland as far back as history almost can take us. The old "Acts" of King James, which contain references to "Phesanes" and Capercaillies, also have it: "Quails, *which are so much decayed of late*" (italics are mine—J. A. H.-B.), and there are various other mentions of the bird.

Coming to later dates, Col. Drummond Hay says: "Formerly it was of regular migration in the Carse of Gowrie, where it bred. The last nest known to me was in the garden hedge at Manse of Errol in 1832, since when it has been hardly seen."

Localities and dates given for its appearances are as follows: Burrelwell, April 1844; Dysart, Aug. 1884; Brakie, 1879; one shot on Loch Tay by Mr. D. Dewar, 1893; Auchengarroch, 4th Sept. 1893 (*auct.* A. B. Crake, *Annals Scot. Nat. Hist.*, 1893, p. 225); Stobhall, some twenty years previous to 1901—say 1881; the last seen by Mr. Nicol Simpson, he tells me, was shot at Laurencekirk nearly twenty years ago, and "is the only instance of its appearance I can submit" (*Annals Scot. Nat. Hist.*, 1900, p. 199).

Dr. Dewar has it mentioned simply as "Occasional in the east of Forfar."

Other localities where specimens have been obtained are: near Blairgowrie (1832), St. Andrews, Strathmiglo, Fife (see *Cat. Old Soc. Perth Museum*, 1881, p. 92), Meigle, etc., etc.

For the following accounts of the Quail in the north-east of Fife I am indebted to my friend Mr. Wm. Berry, and I cannot do better than give his information in his own words as follows:—

TAYFIELD, NEWPORT, FIFE,
*3rd February* 1905.

DEAR MR. HARVIE-BROWN,—I have now collected all the information I can about *Quails*, and it tabulates as follows:—

1861. Covey of seven at Fordelhill, near Leuchars, Fife. Two shot by John Fowlis.

1864. (*cir.*) One seen on Morton, near Tayport, Fife, and fired at, but not secured. (*Teste*, John Fowlis.)

1865. Two shot by Alex. Robertson, Esq. (Sheriff-Substitute of Forfar), of Burnside, at Forest Muir, on Glamis Estate; set up, and now at Burnside.

1893. (*cir.*) One was shot at Glenbervie, Kincardineshire, reported to me by

Edw. B. Nicolson, who lives with me in Edinburgh. Severa more seen in district; this one set up, and now at Glenbervie.

1904. October 4. One seen at Naughton, near Newport, Fife, and fired at by my brother Robert. He is an Engineer on the S. M. R. of India, and lives where quails abound. Identified by him beyond all possibility of doubt so far as he is concerned. Also seen and recognised by another gun, Capt. Hamish Maitland of the Rifle Brigade, who had just returned from two years' service in Egypt.

About the same time, within a few days or so (8th October), one seen at Errol Park, Perthshire, which lies on the north bank of the Tay, almost opposite Naughton, by the same Capt. Maitland.

I enclose the letters in which these events are narrated, in case you may wish to have the most authentic information. I also enclose the slip memo. you sent me.—Yours truly, William Berry.

Millais merely marks "Quail" as "rare."

I have no account of it from the parish of Guthrie, nor from any localities around Forfar or that portion of Strathmore.

## Lagopus mutus (*Montin*). Ptarmigan.

Abundant. Resident. Breeds.

Old Gaelic name, *Tarmachan.* Often spelled in old *Statistical Account* "Tarmagan," also "Tarmacks," and "Ptarmachan."

Localities are mentioned in the old *Statistical Account*, for instance, "On Ben Chonzie in Perth," etc. (old *Statistical Account*, vol. vii. p. 572).

The Ptarmigan occurs frequently on all the high hills of Atholl, Rannoch, and Breadalbane; on Ben Lawers, Ben More, Schiehallion, etc.

In the north-east of the Grampian range they are said by some only to appear in winter and in stormy weather as far east as Mount Battock and Cairn a Mount; but Sim puts its easternmost breeding range as at Mount Battock at the least.

It nests on Ben Alder and on the Garvel above the Bridge of Gower in Rannoch (Godfrey). Indeed, I know it to breed on all the ranges of the Grampians westwards from Mount Battock, as above indicated, and all through the hills of sufficient altitude across Scotland, making it unnecessary to devote more room to details.

Above Balnagairn, in Glen Clova, Feilden shot his first Ptarmigan at the age of eleven years, with his father's gun. "Take the gun," said the dad, "cock it, and shoot one of these birds. It is not every boy of eleven that has had such a chance." The gun went off, and one bird was fluttering on its back (1849).

As many as forty brace have been shot in a day by one gun on the tops around Loch nan Eun. Perhaps nowhere in Scotland are Ptarmigan in such abundance as along the great continuous ranges of the Grampians. Where the hills are isolated—as, for instance, in the west of Sutherlandshire—and in many of the western hills, they are by no means so plentiful.

In the south-west they are scarcer, but still hold their own without any great or permanent increase. This district approaches the southern limit of their present distribution in Scotland, though I have seen a single specimen which was said to have been obtained on the central range of Stirlingshire, but this could only have been a most unusual incident. I saw this bird in the country inn of Crawford, in Lanarkshire, very many years ago, and have a note of it somewhere in a commonplace-book.

On Ben Morlaich (Vorlich), however, thirteen brace of Ptarmigan were shot on Col. Stewart's ground in 1904. For many years previously only small numbers have been obtained, but possibly that may, in some measure, have been due to sportsmen going up so seldom to the higher grounds which the birds frequent.

### Lagopus scoticus (*Lath.*). Red Grouse.

Abundant. Resident. Breeds.

Old Gaelic name, *Coilleach ruadh—i.e.* the real old "Red Grouse" of the original breed—now becoming rarer and rarer, with the recent innumerable introductions of new blood and mixing up of types. The "true" Red Grouse is still to be found in the Outer Hebrides, and in some isolated localities in the west of the mainland. I have one before me now, kindly procured for me by Mr. W. Macgillivray in Barra (1903).

Col. Drummond Hay relates the almost total disappearance of Grouse from the Sidlaw Hills and the eastern portions of the Ochils —"owing," he considers, "to excessive draining and the almost total annihilation of heather by wholesale burning."[1] A form of local migration, however, takes place between the Grampians and the Sidlaw Hills across Strathmore in winter—as indeed elsewhere, even in autumn, and soon after the moors have been shot over earlier in the season.

At the time Don wrote, he spoke of the rapid decrease which was evident then, and expressed his opinion that these birds might become extinct unless better cared for by the proprietors!

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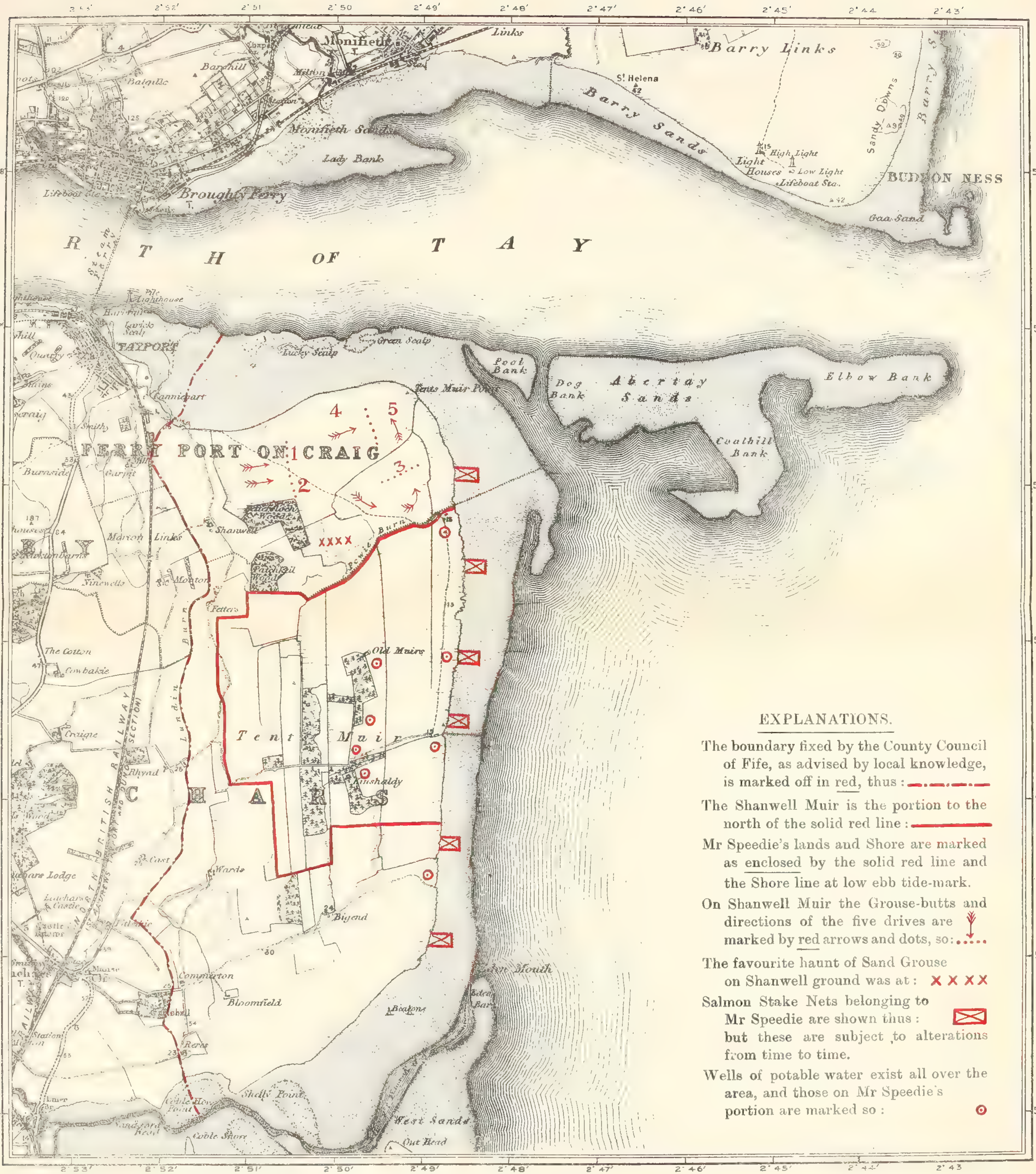
[1] Excessive draining is quite as bad as too little in my opinion.


Monifieth
Links
Barry Links
Barnhill
Balgillo
Milton
Monifieth Sands
Lady Bank
Broughty Ferry
Lifeboat Sta.
St. Helena
Barry Sands
Light Houses
High Light
Low Light
Lifeboat Sta.
Sandy Downs
Barry
BUDDON NESS
Gaa Sand
FIRTH OF TAY
Pile Lighthouse
Larick Scalp
TAYPORT
Green Scalp
Lucky Scalp
Pool Bank
Tents Muir Point
Dog Bank
Abertay Sands
Elbow Bank
Coalhill Bank
Craigie
FERRY PORT ON CRAIG
1
2
3
4
5
XXXX
Shanwell
Morton Links
Morton
Fetters
Pitchkil Wood
Old Muirs
Tents Muir
Kinshaldy
Lundin Burn
NORTH BRITISH RAILWAY (TAYPORT AND DUNDEE SECTION)
SHARDS
Rhynd
Wards
Bigend
Earlshall
Commerton
Bloomfield
Beacons
Eden Mouth
Eden Bar
Shelly Point
West Sands
Out Head
Coble Shore
Guardbridge
56°28′
56°27′
56°26′
56°25′
56°24′
56°23′
56°22′
2°53′
2°52′
2°51′
2°50′
2°49′
2°48′
2°47′
2°46′
2°45′
2°44′
2°43′

## EXPLANATIONS.

The boundary fixed by the County Council of Fife, as advised by local knowledge, is marked off in red, thus : —·—·—·—

The Shanwell Muir is the portion to the north of the solid red line : ————

Mr Speedie's lands and Shore are marked as enclosed by the solid red line and the Shore line at low ebb tide-mark.

On Shanwell Muir the Grouse-butts and directions of the five drives are marked by red arrows and dots, so: ↓ ·····

The favourite haunt of Sand Grouse on Shanwell ground was at : X X X X

Salmon Stake Nets belonging to Mr Speedie are shown thus : ☒ but these are subject to alterations from time to time.

Wells of potable water exist all over the area, and those on Mr Speedie's portion are marked so : ⊙

Reproduced from the Ordnance Survey Map with the sanction of the Controller of H. M. Stationery Office

MAP OF
TENTS MUIR & FIRTH OF TAY,
BARRY LINKS &c.

Scale of One Inch to a Statute Mile — $\frac{1}{63360}$

8 7 6 5 4 3 2 1 0 1 2 3 Miles

In the south-west Mr. Godfrey designates Grouse as not abundant around the west end of Loch Earn, but this note refers to the summer or breeding season; and I have in the shooting season found Edinchip moors in good condition with quite a good stock of Grouse. Such conditions, of course, change with the seasons.

Quite the most interesting history connected with this species is the perfectly successful introduction of Grouse to the hollows of the great stretch of sandhills upon the Tents Muir in the north-east corner of Fife by Mr. John Fowlis—long time gamekeeper there, and whose portrait I am glad to be able to reproduce. My thanks are due to my friend Mr. W. Berry for obtaining this for me, as well as much other kind assistance in my work.

I cannot add anything to the excellent account given of this remarkable clothing of bare sandhills, digging of pits to obtain water, and final and successful introduction of the birds, by Mr. W. Berry, as contained in the *Annals Scot. Nat. Hist.* for 1894, pp. 197-203, and which was also previously referred to in the *Zool.* for February 1894. I will, however, here quote his description of the range of Tents Muir, which will tell others, should sportsmen desire to introduce these birds to similar kind of ground, how they may well do so.

Mr. W. Berry relates as follows: "The Tents Muir is a large tract of barren moorland, flat as the sea which borders it along its entire length. It extends from the Firth of Tay on the north to the estuary of the Eden near Leuchars in the south; its length being approximately five, and its breadth two miles. The elevation above sea-level of the whole of this area is quite inconsiderable—perhaps eight or ten feet, or even less; but it is broken up and partially sheltered from the sweep of the winds by lines or chains of sandhills, which rise to the height of thirty or forty feet, and trend, speaking generally, in the direction from east to west; a similar chain forms a continuous rampart along the seashore. The soil, if such it can be called, is simply blown sand, only anchored in its present position by the vegetation which has somehow established itself upon the surface; indeed, a strong gale—particularly a nor'-easter such as that which carried destruction on so vast a scale to the woods and trees of our eastern counties on the 17th November of last year—sometimes makes a material alteration in the appearance and size of the sandhills, blowing tons of sand, along with the bent grass—root and stem—which formerly bound it together, to form a new and sterile area on what was before good heather ground.

Herein lies a danger to which inland moors are not, of course, liable; and in order to minimise the effect of such a calamity we are obliged to leave a broad fringe of strong unburnt heather along our northern boundary, so that, on the one hand, the plant itself may not so readily be smothered, and, on the other, the sand may, by the thicker vegetation, be more speedily arrested in its march of destruction."

Mr. Berry then defines the area, as divided between three proprietors, etc., but the original home of the introduced Grouse is the northern or "Shanwell" moor, of which Mr. Berry is the shooting tenant. He goes into some details of the different forms of vegetation, and speaks of the two streams of running water which cross this northern portion, which, however, are liable to "run dry" in hot summers. Water, however, can be found at any season, and at almost any spot on the moor, by digging a few feet into the sand. He then details the occasional presence of stray Grouse which appeared upon the moor prior to the introduction, "but it was not till the year 1876 that the late Admiral Maitland Dougall of Scotscraig decided to try an experimental introduction of the bird." After certain preliminaries, John Fowlis, the gamekeeper, "succeeded in capturing a pair of well-grown Grouse" on the moor of Outh, the property of Mr. Lawrence Dalgleish, and these were "duly set at liberty. In the following August—on the 8th, to be exact—eight more birds were procured from the same moor, and it soon became evident that the experiment was going to meet with a considerable measure of success." At this stage a number of men were "engaged to dig up turfs covered with the good heather . . . and place it where bell-heather or grass predominated, and this transplanted heather continues to flourish and is spreading, etc. Water-holes were also dug wherever the water-supply was deficient, or not easily accessible; and in the following season the reward of this forethought was reaped, for the birds not only bred, but successfully brought their young to maturity. Of these birds, on 26th August 1878, the Admiral shot five—the firstfruits of Tents Muir."

An average bag of some twenty brace was obtained in the season for each of the following seven years—say from 1880 to 1886 inclusive—fourteen brace having been shot on one day (on 7th August 1886) by two guns.

The further history is all interesting, viz. the first inclination of the birds to pack and become unapproachable; the correction of this by instituting a regular system of driving, when Mr. Berry became

JOHN FOWLIS, WHO INTRODUCED GROUSE TO THE TENTS MUIRS.

the tenant in and after the year 1896. One hot summer, that of 1887, was a trying one for the birds, and only 6½ brace were killed that season; fresh blood was again introduced, and "in the latter end of November nine hen birds were procured from Kirkcudbrightshire, which, being taken to the moor, the basket and its custodian were surrounded by lustily crowing cocks before even the captives were set at liberty. The cold summer which followed in 1888 prevented the results of this new blood being apparent for some time, . . . but in 1889 the bag (19½ brace) was again practically up to the average of recent years."

Mr. Berry concludes his most interesting history by saying: "The Grouse may now be considered as thoroughly acclimatised on Tents Muir," etc. . . . and "the Tents Muir Grouse and their fortunes in the future will be perhaps as much the immediate concern of the sportsman as of the naturalist; but it is from the point of view of the latter only, so far as possible, that I have attempted to give their history in the past. Others may, I trust, be interested to learn some of the details of this experiment in practical ornithology which the late Admiral Maitland Dougall so shrewdly undertook, and, with the able assistance of his gamekeeper, Mr. John Fowlis, so successfully carried out."

In conclusion, I would like to add that by the kindness of Mr. Berry I had an opportunity of participating in a Grouse drive upon Tents Muir one day in 1897, on which occasion the bag was 17½ brace to four guns. It was a new experience to me, as also to my friend Mr. J. R. W. Cook, with whom I drove over from St. Andrews to join the party. I had never seen this northern portion of Tents Muir before, though I had been long acquainted with the more southern parts of it, so the ground and all the conditions were new and delightful to me, even though suffering all day from an attack of asthma and its effects, which the drifting sand did not improve!

Millais has in his collection white, pied, blood-red, jet-black, and one lavender-coloured variety of Red Grouse.

### Tetrao tetrix, *L.* Black Grouse.

Abundant. Resident. Breeds.

There is a curious statement in the old *Statistical Account* (vol. vi., 1793, p. 361) that Blackgame are "said to have appeared seven years ago—say 1786—on Little Dunkeld, P. of Perth." This statement was given by the Rev. J. Robertson, the writer of the account.

Blackgame Col. Drummond Hay believed to have become scarcer —whilst speaking of their former greater abundance—on account of many drainage operations and improvements on land; and he generally agrees with my formerly expressed opinions—in my booklet on the Capercaillie—that decrease was not so much, if at all, due to the increase of the Capercaillie, because the said decrease is equally observable where Capercaillie are abundant and where there are no Capercaillies at all.

In the north-east Mr. Milne speaks of Blackgame as common, but not so abundant as Grouse.

In the south-west Godfrey does not seem to have met with many at Lochearnhead; but then his opportunities were principally confined to the time of their nesting, when they are comparatively rarely seen. I have seen a good many there in the shooting season. Again, Mr. Godfrey did not see many about the head of Loch Rannoch in summer, though he did find some near Loch Eigheach. I have seen quite a number when shooting along the lochside, and driving the covers at Crosscraig in 1874. A fine drive for these birds was among the alder thickets and clumps of alders and willows along the loch margin.

As to general decrease in Scotland, I imagine it is more of local than general significance, and depends a good deal upon the treatment they and their haunts receive.

I have lately been informed also that Blackgame have reached the introduced heather, which was planted among the sandhills of Tents Muir preparatory to the introduction of Grouse there by John Fowlis (*vide ante*). Mr. Berry tells me "five at least were haunting this ground in the season of 1904-5, and they had appeared either one or two years before," and I am further informed that a nest and eggs were found for the first time in 1906.

### Tetrao urogallus, *L.* Capercaillie.

Old Gaelic, *Capul coille* (see Essay, title *infra*).[1] Formerly a native. Became extinct. Was reintroduced. Became abundant, resident, and breeds. Universal over the whole area where suitable haunts are to be found. Has dispersed from all original centres of restoration.

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[1] *The Capercaillie in Scotland: with some Account of its Extension of Range since its Restoration at Taymouth in* 1837.

I may be pardoned, I hope, if, for the interest of local readers, I draw attention to a review of this booklet in the *Dundee Advertiser* of 17th August 1879.

THE LATE L. LLOYD, Esq,

From a photograph by Moritz Fürst, Goteborg. circa 1868.

The following may be held as continuous with the original essay, and includes an epitome of the Appendix to the same, which was issued later.[1] I can only afford space here to give a short indication of the contents of the former essay relating to TAY and neighbouring districts, and to refer my readers to the original for further particulars.

"Perthshire" occupies pp. 57 to 70, where the most minute details of advance are given. In the same way, "Forfarshire" occupies pp. 72 to 75. But Kincardineshire remained at that time almost a blank, and the nearest location shown on the map represented only, so to speak, a "visiting committee" at Fasque House. In fact with the exceptions of a few visits of such early pioneers, such as a *hybrid* at Fetteresso on 26th October 1872 (*Scot. Nat.*, 1873-4, vol. ii. p. 57), referred to in the original essay at p. 95, and a few which had crossed over into DEE by Glen Dye by 1878, and one or two—again at Fetteresso and at Inchmaldie—in the same season of 1878, there was little to say of its progress in that direction.

Coming now to the Appendix, there are a few items of interest, which I will shortly epitomise here :—

I. *E.g.*—Under old grants, dated about 1343-1361, for the county of Durham (England), *re* paying 'one wode-henne yerely to the Bishop of Durham,' indicating pretty clearly the 'Ceiliog' or Capercaillie.

II. *E.g.*—An earlier allusion (poetical) than that of Boetius, in 1526, in 'A Brash of Wooing.' The poet—William Dunbar—died about 1520. The Capercaillie is here referred to as 'my capercalyene' as a term of endearment.

III. *E.g.*—As regards its former presence in Wales.

IV. *E.g.*—As occurring, prior to extinction in Kinross, 1833.

V. *E.g.*—As to extension in Forfarshire (refer to original essay, chap. vii. p. 71 *et seq.*). Thus : "The great fir-woods of Munremmon Moor stretch over 5000 acres south from Aldbar Castle, of which some 3000 acres belong to me. It is full of Capercaillies. The first was shot in 1872, but they had appeared a year or two before" (*auct.* Lord Southesk, *in lit.* to Mr. D. Douglas).

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[1] *Scottish Naturalist*, 1877-8. And in 1881 I made a short appeal to ornithologists and correspondents to help to keep me posted up in any further advances of the species in certain directions, including Kincardineshire and DEE (*Scot. Nat.*, 1880). It is perhaps of less importance now to keep all "steps of advance" up to date ; and therefore I have not considered it necessary to give so much continuous attention to details as I did when preparing the original. But some items will be found in Sim's DEE, and in our MORAY volumes of the Faunal Series.

VI. *E.g.*—Regarding extension in Stirlingshire (refer to original essay, chap. xii. p. 82).

VII. *E.g.*—As to extension in Inverness (*vide* original essay, chap. xiii. p. 93).

VIII. *E.g.*—Its extension in Kincardineshire. Further remarks on its advance into DEE, over the skyline. This "fulfils my prophecy" of their "line of least resistance," and that it would follow down Glen Dye.

IX. *E.g.*—Regarding its extension into Ross-shire (see original essay, chap. xv. p. 98). This has never been verified. (Also refer to my remarks under species in *The Vertebrate Fauna of the North-West Highlands and Skye.*)

The remaining three other notes refer to bones of the bird found at Settle; the Capercaillie in Ireland; and Capercaillies for America. All the above are under date of publication May 17, 1880.

I now proceed to take up what little more of interest I have gleaned since, and considered worth keeping note of:—

An early and accurate account of the former abundance, extirpation, and restoration is epitomised in a note to the first line of the local bard's poem, "The Tay." This states its extirpation to have been caused "by the almost utter annihilation of those immense forests, which at one time covered the greatest portion of the Highlands" (*loc. cit.* p. 51, notes, 1850).[1]

Now, at the present time, Capercaillies are resident in Drumtochty Woods. But Mr. J. Milne tells me that there had been an introduction there about 1870, by eggs from near Crieff, since which time there has been a rapid increase—as many as twenty having been shot in one day (9th December 1896). They are also present, but not so abundantly, in Glensaugh, and on Fordoun estates; at Dalavaird and Glenbervie more numerous, and have bred at these places for some years back. They are now very numerous at Fasque (see original essay, and the map, and remarks *ante*, p. 283). They are to be found, too, above Fettercairn (property of the Honourable C. F. Trefusis). All of these are Kincardineshire localities.

Mr. Milne describes a fight between a male Capercaillie and a male Pheasant, also a defiance by a Caper-cock to a spaniel. He adds as regards their present distribution—"scarcely so numerous after

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[1] As I have said before, the minute history of this great denudation of our forests might well form a fine monograph on a not yet exhausted subject.

LAWRANCE BANVILLE, THE IRISH KEEPER TO SIR THOS. FOWELL BUXTON,
WHO BROUGHT OVER THE CAPERCAILLIES TO TAYMOUTH FROM SWEDEN.

the wind-storm of 1893, however, which levelled so many of the pines."

In the north and north-west Capercaillies are known to have reached Rannoch as far as Camusericht; and it was known to have nested there occasionally by that time.

It has also made its way out of Glen Dochart in the south-west over into Argyll, but not as yet in force; nests, however, have been known for the past few years.

One of these great "waves," so to speak, of productiveness which appear periodically, as well amongst birds as amongst mammals, appears to have taken place recently at what may still be considered the "head-centre" of their population—viz. at Dunkeld. In 1897, and again in 1902, Mr. W. Evans was assured of a very great increase there, and the bags I will presently quote bear this out completely, and, it may be safely predicted, will result in a further great congestion and outflow in *some* direction.[1]

In the shooting season of 1903, 67 Capercaillies were shot in one day, and as I was informed by Mr. Heatley Noble, who was one of the sportsmen present, "if hens had been killed all the afternoon, over 100 could easily have been bagged" (*in lit.*, January 1904). This was on the Dunkeld estates.

But in the following season this record was beaten, and 70 were shot in one day. It is understood that this constituted the record for Britain; but Mr. J. G. Millais tells us that "these record bags" have been equalled, if not exceeded, on the same ground—as many as 70 having been obtained in one day upon the Duchess-Dowager of Atholl's grounds at Dunkeld in the season of 1902!

Many other good bags could be quoted, but that seems unnecessary; but the above clearly indicates what part of the area occupied by the birds shows the "head-centre" of their present distribution.

I am not aware whether any Capercaillies have penetrated up the Earn and reached Lochearnhead, but I would not be surprised to learn that they have occasionally been seen among the hardwoods of Edinchip during the nesting season.

Of varieties in plumages of this bird there are many, but it seems to be less subject to variation in this country than in the older possessions in Scandinavia. In 1871 I saw a wonderful collection of colour-variations in the Museum at Christiania—a whole long case on the ground-floor being devoted to these and to different hybrids.

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[1] There have been many extensive young plantations formed, since my original essay was printed, on the slopes of the moors to the north of the Highland Railway between Struan and Dalnaspidal.

Millais figures one in his *Game-Birds and Shooting, etc.*, p. 16—a pale variety, killed at Ballathie, Perthshire, in December 1889.

The hybrid between Capercaillie and Pheasant he also figures, which was obtained by my friend Mr. James Lumsden, of Arden, Dumbartonshire (CLYDE). I would at any time be glad to hear of any other varieties, or crosses, anywhere in Scotland, and even the occurrences of the commonest hybrid, *i.e.* between the Blackcock and the hen Caper, as that indicates often the first advance into a new district.

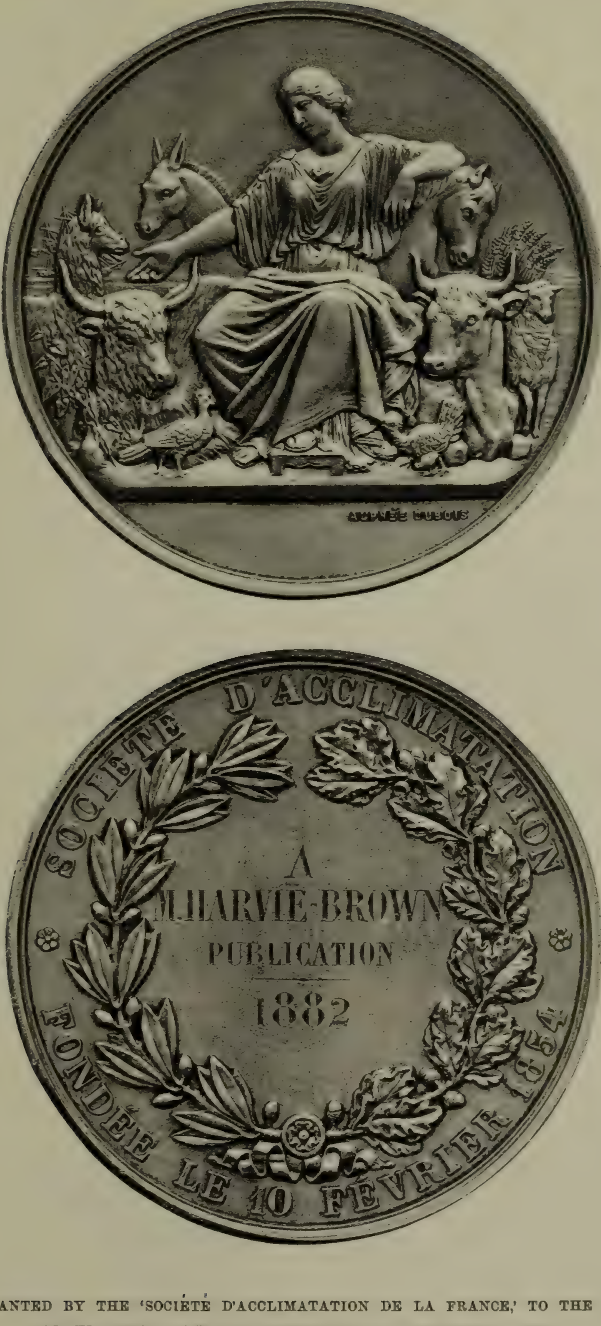
Since all the above was written, Millais sent me the following additional notes: "I have seen 35 cocks shot in a day; 100 Capercaillies have been killed in a day's shooting at Fotheringham, my authority being James Keay, the Murthly head-keeper, who was present at the shoot."

"During the great gale about six years ago (that of 1898) which blew down half the Scots fir in TAY, the whole of the wood to the east of Killin was blown down in a single night, *i.e.* all except one Scots fir, which was seen in the morning to be covered with about 40 Capercaillies. These birds are said to have been moved eastwards to the Loch Tay side woods the same day. I cannot," continues Mr. Millais, "vouch for this story, but it was told to me by a Killin keeper, and is of interest." (The whole of that wood was not blown down, but the remains seen by me in 1905 certainly might well express the general destruction.—J. A. H.-B.).

Millais mentions that he has four female Capercaillies assuming the male plumage, and one silvery white variety—"a splendid old male shot by Colonel Richardson at Ballathie. I have weighed a cock Capercaillie at 12 lbs. This weight is far in advance of the usual weight, which is about 9 lbs. Malloch killed a cream-coloured Capercaillie at Foulis-Wester, Earnside."

Capercaillies have greatly increased in numbers at Drumtochty, as Mr. Milne again assures me in July 1905, and he tells me that Blackgame have also greatly increased simultaneously, owing to the large additional acreage now under plantations. Young Capercaillies were successfully reared at Drumtochty this (1905) spring and summer by the keeper along with his Pheasants.

The present status of the Capercaillie in the north of Fife may be expressed as little differing from what it was when I wrote the original, viz. "resident but not common" (Mr. Berwick).


ALPHÉE DUBOIS
SOCIÉTÉ D'ACCLIMATATION
A
M. HARVIE-BROWN
PUBLICATION
1882
FONDÉE LE 10 FÉVRIER 1854

MEDAL GRANTED BY THE 'SOCIÉTÉ D'ACCLIMATATION DE LA FRANCE,' TO THE AUTHOR FOR HIS ESSAY ON "THE CAPERCAILLIE IN SCOTLAND." 1882.

## Order **GRALLÆ.**

### Family **RALLIDÆ.**

**Rallus aquaticus,** *L.* **Water-Rail.**

Resident. Commoner than it usually gets credit for, and in all probability nests regularly if not abundantly.

In some winters it appears to be more plentiful than in others. Col. Drummond Hay never met with the nest in the Carse of Gowrie, and he looked upon the bird as merely a winter visitor, though he was well aware of their nests having been found in other parts of the country. No doubt in the main he was right; and so far as I know, the nest has not yet been discovered anywhere within our present boundaries—at least I am not aware of any that have been recorded—though I am aware of nests having been found, and of the birds having in all probability nested at a locality close to our south-west boundary. I cannot help thinking that the nest would be found to occur at several places known to me, if the search were prosecuted carefully. The actual record alluded to above refers to a nest found and recorded on the 3rd May 1892, at a retired moorland loch in the south-west of Perthshire. There are several of such which appear equally suitable; but the close details were, wisely, omitted.

This bird, at all events, seems to have a tolerably ancient history in Scotland, as Don includes it as long ago as 1813, though without any remarks.

Of winter occurrences, it comes to be hardly worth while to enumerate them; but I may mention that in the winter of 1878-9 I heard of a very abnormal experience with this species, Mr. Malloch, of Perth, having found them in *extraordinary* abundance in the tidal marshes of the Tay.

**Porzana maruetta** (*Leach*). **Spotted Crake.**

Not really rare, but seldom observed. I believe it to be a regular visitor, and an occasional breeder; but in the absence of proof this must remain in doubtful position. In migrational distribution, at all events, as far as deduction can guide us, it appears to be of very general occurrence over Scotland, and is probably of commoner appearance than it usually gets credit for.

Col. Drummond Hay wrote in 1874: "Frequent examples of this little Crake (not the Little Crake, *P. parva*, Scop.) have been seen by me on the banks of the Tay in autumn, one of which is in my possession."

In the winter of 1878-9, Mr. Malloch saw one Spotted Crake. This was on the same day that he shot his record bag of Water-Rails. He wrote: "I put this Crake up; but though I could have easily shot it, I did not, because it was too near, and it escaped into the reeds." I may mention that I have had similar experiences with this species, *i.e.* raising one suddenly when wading a duck-marsh, seeing it distinctly fly about five yards, and then alight among the sedges or reeds, and utterly fail to put it up again. On one occasion, I can clearly remember, I identified the bird by the distinctness of the bold spotting on the back, though at that time I had never seen the species before.

*Obs.*—I think it is almost undoubted that Mr. Berry, of Tayfield, handled either one of the Little Crakes or one of Baillon's Crakes upon one occasion. The identity, however, of this bird must remain uncertain, as he allowed it to fly away after examining it in his hand, having picked it up out of a ditch on the borders of Tents Muir. I believe it was probably Baillon's Crake from the description, and that it was not the Spotted Crake.

A specimen was obtained by Mr. Graeme, of Inchbrakie, and sent to Mr. R. Gray for exhibition. It was shot 7th October 1878.

In 1903, one at Murthly, 2nd November, and recorded (*Annals Scot. Nat. Hist.*, October 1904). It was shot by Mr. W. H. Cox, of Clunie, "quite recently" (*Proc. Perth. Soc. Nat. Sciences*, 1903-4, p. vii.). The date of exhibition and record is 12th November 1903.[1]

How long this small and inconspicuous little Crake may have been an inhabitant of the Scottish areas I cannot, of course, say; but I am inclined to look upon it as a "lingering remnant," only retreating before the adverse circumstances of increased drainage and land improvements, as may also be said of the Bittern and some other species.

One, Glenfarg (Fife, TAY), 20th September 1894; and one at the same place, 10th October 1895; both sent by Mr. Riddell Webster to Mr. Small, Edinburgh, for preservation (*vide* Register).

Millais informs me that he has seen one or two specimens, all killed in the Carse of Gowrie.

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[1] I have also heard of several other examples got in Forth and Clyde in the autumn of 1904.

**Crex pratensis**, *Bechst.* **Land-Rail** or **Corn-Crake.**

Abundant. Summer visitant. Breeds.

Uncertain in numbers year by year, *i.e.* some years commoner than in others. It was noted as not very common in Strath Tay in 1879 by Mr. Horn, but was abundant in Atholl in 1880. They are supposed by many people to be less common than they really are. This belief arises, I think, from the fact that they are more silent in some years than in others, and in such seasons—as indeed always—they are not often seen. This I have proved more than once to my own satisfaction, though not of late years. Formerly, when I was "up to" certain poaching dodges—when I was young and foolish—I proved this by calling them up to my feet and shooting several of an evening, when not one was to be heard calling in the early sprouting of the corn. They were there, though silent. The north sides of lochs and river-valleys—therefore facing the sun—are usually preferred to the side that is in the shade.

Mr. W. Evans heard Corn-Crakes calling, as late in the season as July 1887, in the Tay valley.

From all accounts, they were rarer or more silent in 1905 than usual. May and June were exceptionally cold and ungenial. My own experiences bore out the above remark.

**Gallinula chloropus** (*L.*). **Moorhen** or **Waterhen.**

Common. Resident. Breeds.

From several sources, I heard of a considerable falling off in their numbers after the severe winter of 1878-9, especially in the great reed-beds of Tay. Many perished and were found dead in different places. This was the case, indeed, in many other parts of Scotland that winter, and especially where the rivers run slowly and are most easily susceptible to the attack of John Frost. The Waterhen seems to me to be, in some respects, a "singularly silly bird." It often loses its whole nest and eggs by their submergence in times of floods, and yet they appear to gain no experience! I have known of at least a dozen of their nests thus destroyed on quite a short reach of river—the Deveron (MORAY), and elsewhere; yet within a short time once more the birds would begin second operations in exactly the same places, and these once-flooded sites would all be occupied again, only again to be submerged. The Waterhen ought to confine its attentions to sluiced reservoirs and mill-ponds and shut-off backwaters, and leave running streams alone.

It is a glutton, too. I have known of cases where, during hard weather, they have come up to the houses to get fed, and if this was carelessly done dire were the effects. If, for instance, potato peelings, hot or cold, were thrown out to them, something like the following took place: In an incredibly short time the whole would be gobbled up post-haste by one, two, or more Waterhens. Then there appeared to be a feeling of intense satisfaction. Then sleep became imminent: up went one leg, the head got tucked under the wing; a see-saw motion began to be developed; and lastly, a totter and the final fall over on the unsupported side, and "death supervened." Poor "Tucky" was dead as potato peelings could make her, and never again would she "tuck." Let us hope, however, she died happy.

Mr. Milne seems to have a higher opinion of their intellect in the north-east of the area. He calls it a "cheeky bird," and speaks of it as "common in the streets of the town by the side of the stream which runs through Fordoun."[1]

[*Obs.*—Purple Waterhen (*Porphyrio hyacinthus*). Temm.
do. (*Porphyrio smaragnotus*). Temm.

Some of the occurrences of these two forms may be of genuine wild origin; but others as certainly owe their occurrences in this country to escaping from confinement, thus rendering it extremely difficult for the historian to award definite values.

One of the latter and more eastern form—*Porph. smaragnotus*—was shot on the tidal Tay near Errol, and is now in the Perth Museum. It was duly recorded by Col. Drummond Hay (*Trans. and Proc. Perth Soc. Nat. Sciences*, 1893-8, p. 71), and again more fully in *The Scottish Naturalist*, vol. iv. p. 37.

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[1] It is remarkable to find some members of this family "cheeky" and others shy, and others again sly, while others yet are actually impertinent to an excess. The Weka-weka Rail of New Zealand, for instance, combines cheekiness or impertinence with robbery and slyness. As for shyness, it has *none*, but makes up for that in its struggle for existence by fastly developed swiftness of action and intuitive display of alacrity in "getting out of the road" when wanted. The Weka-weka deserves to take first place in school among its relatives, if one-third of the tales I have heard are true. The Corn-Crake is a curious character. He combines shyness with intense curiosity, and he does himself well on the whole. He is easily "called up" in the spring or summer, and appears ridiculous. He will sit on a window-sill and stare at you on the other side of the pane of glass, craning his neck absurdly from side to side, and even giving one the idea that he was playing snooks at you, and if unduly encouraged might take off some of one's own idiosyncrasies. I know I have seen him shrug his shoulder and shut one eye (but did not open his arms, or wings, at the same time). Then suddenly out comes a stentorian *Crrrrraaaake*, and with that he pops down into the docks, which hide him from view at once, and he is soon seen scuttling across the gravel head down and shoulders working for all they can, till he disappears in the grass. Last: one more triumphant "swear."

The correct identification and authentication is as follows: I give first-hand for it, and have, since then, also seen the bird myself. Millais writes me: "The specimen now in the Perth Museum was presented by me. It was shot on the Tay, near Errol, by Mr. M'Innes in December 1877. His dog put it out from among the reeds. It is in splendid plumage, and not like a bird that had escaped." I saw this specimen in the Museum on more than one occasion.]

### **Fulica atra**, *L.* Common Coot.

Common. Resident. Breeds.

The Coot is more of a loch-frequenter than the Moor- or Water-hen: wiser, I think. He prefers back-waters, reedy bays, like the old courses of waterways, which have been embanked off in the course of land improvements, and such as are to be found along the sides, here and there, of such slow-flowing streams as the Earn and parts of the Tay, and bulrush-grown mires, and stanks and lochs like Rescobie and Loch of Forfar, etc. The Coot, too, is a combative bird, and easily bullies away the smaller Waterhen, forcing the latter in no small measure to be content with the poorer and often less suitable places. Yet it is wonderful how these two species manage to increase and multiply nevertheless, though poor "Tucky" cannot say "Get out, old bald-pate," and has to be polite. But not to draw too fine a difference between the wisdom respectively of these two cousins, I may mention that the wisdom of the Coot fails too; because many are at times found frozen and dead at such places as Rescobie Loch and Loch Methven, and other reedy sheets of water, having been overtaken by the sudden hand of John Frost before they have found time to clear out to safer quarters. The mortality on such occasions is sometimes great. Such was the case in the severe winter of 1880-81. Tell me, had they no wings? or were they caught in the iron grasp so suddenly as to completely paralyse their actions? Probably sudden surprise, and "no time allowance," I fancy.

In the north-west, Loch Eigheach holds a few pairs, and also Loch Dubhlach; but these remain very select, and annually perhaps limit their numbers to about two ladies and two gentlemen year after year. In the south-west, Loch an Eala remains happy in the presence of one pair, or at most two, as I am informed by Mr. Godfrey, and I have seen a pair or so on the loch when passing in the train. The area of this little sheet of water cannot be much over twelve or fifteen acres, but it could hold easily, I fancy, some twenty pairs of Waterhens.

## Order **ALECTORIDES.**

### Family **OTIDIDÆ.**

**Otis tetrax,** *L.* **Little Bustard.**

Some years ago I saw a specimen of the Little Bustard in the Museum at St. Andrews, but at the time could obtain no sufficiently definite authentication of it, though assured that it was obtained in the district. I am indebted to Mr. William Evans, who also saw it there in 1890, for the reference, which had, curiously enough, escaped me, as it had also apparently escaped other subsequent writers.

With the exceptions of a very general statement in the latest edition of Yarrell's *British Birds* (vol. iii. p. 217) that four examples of the species had been obtained in Scotland, mostly on the east coast, and a short and slightly more definite mention in Dresser's *Birds of the Western Palæarctic Region*, the following account in very full detail by Macgillivray seems to have been left unnoticed until Mr. Evans found it. I quote the original record by Macgillivray, as it is one of the earliest of its occurrences given for Scotland.

Macgillivray says (vol. iv. p. 39): "The only specimen obtained there (*i.e.* in Scotland), in so far as I can learn, is a female, which Mr. John Adamson informs me was shot on the 6th of March 1840, near St. Andrews. It was first seen among turnips on the farm of Burnside. When raised, it took a short flight with outstretched neck like a duck, and again settled in an adjoining ploughed field, where it was found with some difficulty, as it sat close. It gave a peculiar chirping cry on rising. It was in fine condition, weighing twenty-eight ounces, and, on being prepared, was placed in the Museum of the St. Andrews Literary and Philosophical Society."

In Yarrell's first edition (vol. ii. p. 373) the only previous Scottish specimen is the one obtained near Montrose in December 1833.[1] Yarrell's first edition bears date of 1843, so he cannot have had news of the above St. Andrews specimen at that date, nor is it mentioned in the first or second supplement. I have not examined the second and third editions of Yarrell's *British Birds*.

It appears, therefore, that these two early occurrences are both claimed for our present area.

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[1] This information was supplied by Mr. Thomas Macpherson Grant, of Craigo, whose name will be found frequently mentioned in our volumes on the *Fauna of the Moray Basin*; and I possess many of his letters which were written to the late Rev. Dr. George Gordon, of Birnie, in connection with the birds of Moray, and the extensive collection which he gave to the Museum at Elgin. Thus, as above, it appears he had also been a correspondent of Yarrell's.

## Order **LIMICOLÆ.**

### Family **GLAREOLIDÆ.**

**Glareola pratincola,** *L.* **Common Pratincole.**

One occurrence.

I received for identification a young bird of the year, which had been shot on the Mill Burn, Rocklands, near Montrose, by Mr. Stormond, Ferry Street, Montrose, on the 4th November 1899. It was stuffed by Mr. D. Towers, identified by Mr. Milne, and sent to me; and I recorded it in *Annals Scot. Nat. Hist.*, January 1900, p. 51. It was first announced to me by Mr. Milne (*in. lit.*, 19th December 1899).[1]

### Family **CHARADRIIDÆ.**

**Charadrius pluvialis,** *L.* **Golden Plover.**

Common. Resident. Breeds.

In the old *Statistical Account* the name "Grey Plover" is often used; but I do not place much reliance in such notices, and either omit them, or use them where I think desirable with a (?). In the following parishes the entries may be considered reliable and *referring to this present species*, viz. Moulin, Muthil, Weem, Monzie, and Longforgan.

In 1873 it is stated in the *Agricultural Survey of Kincardineshire* that the Golden Plover was a *permanent resident on the moors in vast flocks.* If this was correct, there has taken place a vast change in their haunts and habits since, as well as a great general decrease in their numbers at all seasons.

The populations of this species seem to be dependent upon certain conditions, which it is extremely difficult to assign in different localities. Their breeding strength varies even from year to year, or at very short intervals of time. I have often noticed this, and as often wondered what the direct cause could be, but have never satisfied myself about it. Sometimes I thought it was entirely due to changes in the summer seasons; at others, that it was due to development of certain conditions of the state of the soil and frequented ground; and again I have been utterly at a loss to account for it at all! And I am so still! Places I have known to have been frequented year after year regularly have been apparently deserted for a number of years after, and that *suddenly* in the first instance, and quite without any patent or assignable cause; and other localities again taken possession of, equally without any apparent reason. This has long been a puzzle to me, and I do not seem to get any nearer to the causes. I can only refer my readers to my previous remarks in the last volume of this series, and to others in the prior volumes.

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[1] The only other example recorded from Scotland dates as far back as August 1812, and was obtained in Unst, Shetland (*vide* Saxby, and *A Vertebrate Fauna of Shetland*). The original record by Bullough was given in his *Companion to the London Museum.* But there appears to be some indefiniteness about this early record.

Col. Drummond Hay spoke of it as a species which had very greatly decreased in numbers during the thirty or forty years previous to the date of his writing—say 1880.

Mr. Milne mentions it in his list as "resident, and occurring in flocks in autumn." That is, at the date of 1896, when he sent me his list.

Mr. D. Dewar reported it as "only a summer visitor to the hills around Loch Tay," and gave it as "not very numerous in 1901."

Mr. Godfrey only met with it upon the westerly slopes of the hilltops around the head of Loch Earn, and above Glen Ogle, both in the summer of 1903 and in that of 1904. (I may here mention that I have myself found the Golden Plover nesting on both east and west exposures, and also on north and south slopes in many localities.)

Perhaps they still maintain their old value in some parts of the north-east of our area. Thus the Rev. Mr. M'Connochie says of them: "Common on the hills. Flocking in the lowland country and among the fields occasionally, towards the end of the season."

There is no doubt that great numbers were formerly shot on certain haunts they frequented around Loch Tay—say some thirty years ago—and that in later years they became much less abundant.

### Squatarola helvetica (*L.*). Grey Plover.

It is difficult to judge in every case what is meant by "Grey Plover" in the records of the old *Statistical Account*, and therefore I have usually given these little heed. Not truly gregarious.

In this district of FORTH—the coast of Stirlingshire and the estuary of the Forth generally—the Knot is the bird which goes by the names of both "Silver" and "Grey Plover." But the name Silver Plover is the one usually applied. That name is an importation from the Humber by Humber puntsmen—the Wells, and even old Mr. Samuel Berry Singer, whom I knew for many years after he settled down at Kincardine-on-Forth, and before his death. This name for Knots became general, and local "shore-poppers" took it up, just as "Pickerell" became the common designation of most of the small waders—generically—in local acceptation.

The true Grey Plover certainly occurs on the east coast of Forfar, and in our tidal waters of Tay, etc.; but not, I consider, in as great numbers as have been reported.

Mr. Larnock relates meeting with a large flock of these birds on the 13th September 1902, "amounting to over 50." He says he is perfectly certain there was no mistake with the record. His father shot one, but its head was smashed, and the specimen was not preserved. I must doubt the accuracy of the observation, nevertheless, for more than one reason—*e.g.* Grey Plovers do not migrate quite so early as 13th September; nor do they put in an appearance in vast flocks, but only come to our shores in little family parties of from four to six "in a bunch." I have known the Grey Plover as a regular annual migrant to the "slinks" or mud-flats of the Stirlingshire coast, I may say, almost all my life, and I never knew these birds to assemble in great flocks—as Knots do! I have seen annually Knots in vast battalions of hundreds together. I have shot a good many Grey Plovers in my time, but never did I see more than six together "in a bunch." Greater numbers may be found in flocks elsewhere, but I have never known of such.

It is not often this bird is obtained in this country in the full breeding garb; but there is one in the Perth Museum which was obtained on tidal Tay, as appears from the list I have received from Mr. Rodger.

Millais—whose experience of shore-shooting and punting on the east coast cannot be gainsaid—reckons the Grey Plover as "a scarce autumn and winter visitor." He adds: "I once had a long chase after a beautiful specimen—still in full breeding plumage—on Aug. 1, 1886, but failed to get it." In this case the question arises: Was this bird one which had remained late and through the summer, not breeding, or was it an unusually early autumn arrival? My own opinion is that it was a bird which had remained, due very likely to some physical cause which prevented its departure to the breeding grounds in the far north.

My friend Mr. W. Evans assures me that his experiences of this species on Forth and on the Tay estuary and Eden mouth are similar to my own—*e.g.* he has never seen them in large flocks, and rarely more than three or four together; and considers it as a *late autumn migrant.*

### [Ch. dominicus, *Muller.* Lesser Golden Plover, or
### Ch. virginicus, *Licht.* American Grey Plover.

Mr. Malloch told Mr. W. Evans that he had shot a specimen of this rare Siberian (or American?) bird close to Perth on the Tay (W. Evans, *in lit.*, 23rd November 1886). There was also a previous record of another of the same rare Siberian (or American?) species given by Mr. Millais, which was obtained at the poulterers' market in Edinburgh—Mr. Johnstone's. This bird came to a grocer first in Leith Walk, who was in the habit of getting his (poultry) eggs from the Orkney Isles, and so, no doubt, passed from his hands into those of the game-dealer. There appears to me to be no certainty as regards this specimen, and I prefer to retain it in square brackets until better evidence be forthcoming.

Having awaited my receipt of Millais' notes, I now give these here. Millais writes: "On August 3, 1883, P. D. Malloch shot from a flock of Golden Plovers at Almond Mouth, near Perth, a bird which I recognised as being distinct from the common species. On showing it to Mr. Seebohm, he identified it as *Charadrius virginicus*—the American Golden Plover; but now I think that it is referable to the above-mentioned species (*i.e.* under Millais' heading 'The Lesser Golden Plover, *Charadrius dominicus*, P. L. Muller'), which is an inhabitant of Siberia, but which is nevertheless closely allied to the American form (see *Zool.*, 1886, p. 26). The specimen is an adult male just casting its summer plumage."

I have not had any opportunity of seeing these birds, nor do I know where they are. If it be the Siberian form, one point I think is the colour of the axillary feathers, which in that form are smoke-coloured, but these are also smoke-coloured in the allied form. I prefer to bracket them together, and thus follow our latest authority, Mr. H. E. Dresser.

It ought not to be forgotten, in this connection, that Seebohm and I procured a Golden Plover (to all other appearances a true *Ch. pluvialis*), which had *some* of the axillary feathers splashed with the smoky colour which distinguishes both of the forms of the smaller species—the names of which head this section.

As these two so-called sub-species are generally accepted as belonging to the same, and not truly separable, and as there appears to be some indecision as to whether they came from North America or from Asia, I prefer to retain them meanwhile in brackets, *their origin being uncertain.* When saying that their origin may be uncertain, I refer to the possibility that birds sent from a distance for the purposes of fly-dressing may have got mixed up in the market or in the retailer's hands, and that thereafter it is possible that they may have been confused with others shot locally. That such possibilities and circumstances do occur is well known to many ornithologists of experience. I desire to instance one such only as an example—see the footnote below.][1]

### Ægialitis hiaticula (*L.*). Ringed Plover.

Abundant. Resident. Breeds.

The favourite haunts of the Ringed Plover—or "Ringed Dotterel"—are the sandy and gravelly links and shores of the seaboard; but it is also quite a representative species inland along the gravelly courses of the larger rivers, like the Tay, and of the larger lochs like Loch Tay, and the gravelly beaches of Lochs Ericht, Rannoch, and many others of the sheets of water which are found all over the area. Though they are not so abundant at these more inland localities, still they are quite seemingly at home there, and regular in their annual visitations in the breeding season. It becomes, however, rarer the further inland it penetrates, and thus upon the far western shores of Loch Luydon and Loch Baa it seems to be restricted to only a very few pairs—*i.e.* so far as I have been able to ascertain both from personal observation and the accounts of those who are acquainted with the bird.

These remarks are intended to apply not only to the exact places mentioned, but in a more general sense to localities far to the west of the area, and upon the western slopes and districts of the west mainland. At this point readers who desire to get really useful ideas of distribution in east and west, and again in the isles, should not be satisfied with the book which treats of only one such restricted area.

The negative evidence that it is not included in the Rev. Mr. M'Connochie's list of the birds observed around Guthrie, appears to me quite worthy of notice here.

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[1] I once received a specimen of *Larus kumlieni* from Dundee, along with a number of other Gulls shot locally, and sent me for inspection. But in this case inquiry revealed that the specimen of *Larus kumlieni* had been sent home in a whaler, though most of the others had been killed locally! This specimen I recorded in the *Proceedings* of the Royal Physical Society of Edinburgh. I gave it afterwards to my friend Mr. Howard Saunders; and, after he finished his volume upon the *Laridæ* of the *British Museum Catalogue of Birds*, it passed into the British Museum Collections. I believe it proved to be the first recorded specimen which had come home from the Greenland seas. As I have said, I only instance it here to illustrate how such mistakes may so easily take place. (But I am under the impression that a second one has since been obtained by one of the Greenland whalers, which came from the same source and passed through my hands; but without again seeing the specimen I cannot *record* it, though I thought so at the time. My identification of the first one was correct, and was accepted at once by Mr. Howard Saunders.)

### **Eudromias morinellus** (*L.*). **Dotterel.**

Old Gaelic name, *Amadan mointich*, *i.e.* "The fool of the moss."

Not uncommon, though supposed to be not nearly so abundant as formerly. Summer and passing migrant at intermediate resting places in April, and again in August on their way to and from their nesting haunts in the higher hills.

There are several mentions of it in the old *Statistical Account.* Thus, in the parish of Carmyllie (Forfar), the Rev. Patrick Bryce says:

DOTTEREL ON NEST. *C. Kearton.*

The Dotterels, birds of passage, alight on the rising grounds about the beginning of April, continue here about three weeks, remove to the Grampian Hills about twelve miles to the northward, and revisit this parish about the beginning of August, and after abiding here about three weeks, they fly off to the southward, and are not seen again till the 1st of April following."

They were said then also to nest in the parish of Inverarity

(Forfar), on the authority of the Rev. John Webster, who says: "They have become much rarer since the country was improved" (*loc. cit.*, vol. vi. p. 227). And the Dotterel is also mentioned as frequenting localities in Monievaird, Struan, and Weem in Perth.

In the north-east it is marked "Rare Visitor," and "probably breeds in the higher hills."

Prior to the date of 1870, I was informed that a few couple were usually shot on the Drumouchter grounds by the sportsmen in August; and the keeper, Macgregor, who afterwards accompanied Feilden and myself when we found the nest there, told me in 1870 that these birds bred on the higher hills of his beat, and that he used to send the feathers to the Messrs. Anderson, of Dunkeld, for dressing flies. Small flocks of from six to twelve are annually seen on their favourite autumn localities, indicating—as was indeed well known—about the number of nests which occurred within a radius of a few miles on that watershed.

After Feilden and I took the eggs—as formerly described (*Moray*, vol. ii. p. 172, etc.)—the late Dr. Dewar of Glasgow again found the nest, and *shot both birds*. This was not done from information given by us, but was obtained by word from a man at Kingussie whom he had attended in his capacity of medical adviser. Again, in 1886, I find that at least one was shot by a man by name "Gow," and sent to Macleay, of Inverness, for preservation, from Dalnaspidal—an adjoining shooting to the south of Drumouchter.

Now, up to this time, and for a good many years later, there was always good reason to believe that there was a decided decrease in the numbers of the species, both of those visiting old spring and autumn haunts, and, so far as could be observed and gathered, also of the actual numbers of pairs nesting at previously known localities. Still they were not really rare, at least on the Grampian ranges to the east of the Highland Railway, while there were also a good few pairs occupying other hills to the west.

But by 1902, or thereby, there became evidence that a decided increase was taking place, or otherwise that there was a southward movement of the distributional area in the nesting season. Of this I have considerable evidence. Much of this I do not desire to make public, but I will give some evidence at least to show it.

Speaking of the years between 1830 and 1895, an old man of the name of Duff—before mentioned under Golden Eagle—who latterly resided at Pitlochry, but formerly lived most of his life in Glen Shee, related his experiences to the late Rev. H. A. Macpherson as follows: "In the thirties the birds were very common on the hills around Glen Shee, assembling in flocks of from eight to nine birds. I have found their eggs and also the young in down; and the gentlemen shot many of them. But lately they have become very scarce, and only a few pairs could be found on hills that once afforded nesting grounds for a number of pairs." From being common they became rare—*why*, Mr. Duff did not pretend to account for (Rev. H. A. Macpherson's MS.).

Quite in the same way, Mr. D. Dewar informed the same gentleman that he—Mr. Dewar—had found the nests of the Dotterel on the hills above Loch Tay, but he rarely shot the old birds, though he often took toll of the young ones in the autumn. He says that the birds are much scarcer than they were fifty years ago—say 1850. Many used to be shot at the same time as Golden Plover, and were sent up to London to the late Marquis of Breadalbane. As many as fifty couples of Golden Plover were sent at one time. Mr. Dewar added that "the Dotterels were specially appreciated," and were "kept separate when sent away." This was done on some estates, but not on all; and it was not a universal practice—only local.

Likewise, Col. Drummond Hay said that by 1878 they had become much rarer than they were thirty or forty years before; and he adds: "The Sidlaw Hills used to afford a resting place on their migrations, but by 1878 they had long ceased to frequent that place."

In 1879 Horn considered them to be "rapidly decreasing," but spoke of them as still nesting on some of the higher hills north of Loch Tay. He quotes Booth also as having obtained "some specimens on the north side of Glen Lyon" (vide *Catal. Birds in the Brighton Museum*, p. 140). Booth relates the capture of two birds—one a male, which was accompanied by a brood of young, and another female; and he had seen flocks or parties shortly before the 12th August. This would be about 1866 or 1867.

Mr. D. Dewar, when relating the above to Mr. Macpherson, also added that he had once shot two old birds as late as October 1, 1880, on Remony. There were three birds in company. Weather stormy, and with north-east wind.

There are two others, male and female, now in the Royal Scottish Museum, which were obtained at Dalnaspidal (the male 17th August 1876, and the female 8th September 1876), while two more were in the late Mr. R. Gray's collection.

Of other resting places outside of our present area I could give some account, but that would not prove much in the present case regarding the distribution in TAY, nor add much to our appreciation of the paths followed on their spring and autumn migrations.

My later information, dating between 1900 and the present time, tends to show that an increase was sudden, and afterwards rapid, especially about 1902-3; and further proof reached me in 1904. My correspondents remark upon the fact almost uniformly. And so far as I at present am aware, I believe that I have quite the furthest south record in TAY, and of their having bred there for the first time in 1904. In fact, not only do they appear to have reoccupied many long-deserted sites and hills, but they have given evidence of fresh energy and further extension; but there is one thing *I have not ascertained*, and that is: Whether any diminution in their numbers has taken place further to the north? That, I fancy, may be quite possible, when we take into consideration the cold summers of these years, as I have before pointed out (see *Fauna of the North-West Highlands and Skye*) under another species—viz. the Woodcock, which was known to nest in most abnormal numbers, here and in other parts of Central Scotland, in 1903 and 1904. My correspondents when writing make some such remarks as the following: "I cannot ascertain that the Dotterel has ever been found on this hill, nor about this glen before"; and another says: "It does seem as if they were coming down to lower grounds," and so on.

These movements may yet prove an increase, or otherwise a permanent extended area; or, what seems equally probable, they may only result in a temporary abandonment of formerly more exposed heights or aspects, and be followed by a retreat once more to these in the event of the summers again becoming warmer! I am careful, however, to give them prominence here as undoubted facts, so far as I have been able to ascertain them, but withholding details which might lead to different causes of retreat or disappearance. I think the subject is of sufficient interest to such of our naturalists as find pleasure in watching any causes and effects which have a bearing upon migration, distribution, and the processes of dispersal, and which we have endeavoured to maintain as a point in this series. The land-routes of migrants do not appear to me so great a mystery as some naturalists appear to consider; but they are quite right to endeavour to satisfy themselves, though that can only be well done by those who have been, or who can be, constantly in the field, or who can be sure of obtaining their facts from reliable sources, and who know how rightly to read them when brought together and arranged.

I do not mean to say with any degree of definiteness that this decided extension of range to southward has been caused by any *slight* change of temperature over such a small area as Scotland, or by the difference of the temperatures upon the north side of the Grampians, and upon the south sides of the same range; but the facts stand for themselves that from the *3rd May* 1903 *a continuous* BLIZZARD *blew without the change of a single point of the compass from the direct north-east, during all the time between May 1st and May 17th*; and, as I have related before, Snipe and Woodcock were affected in unmistakable manner (read back under species in my last volume); *and on the night of the 3rd May and 4th May* 1903 *there were seventeen degrees of frost recorded even as far south as Central Scotland*, and I am certain that this was a very general state of affairs during that very phenomenal spring and summer. I would ask those really interested in such matters to *read back.* I am quite willing to admit that the increase and extension southward may simply have been due to natural increase and congestion at old centres; but I see no harm in putting forward the facts connected with an abnormal summer such as that of 1902 undoubtedly was, as also the following summers of 1903 and 1904, and asking other naturalists resident in Scotland at that time to compare along with their own experiences. I have found Dotterels at their nesting grounds in Russia not more than 60 or 100 feet above sea-level. But what a Dotterel may be able to endure which represents the older acclimatising race, or may be looked upon as one of the "fittest" survivals as compared with ours in Scotland, I am unable to gauge. But one thing at least suggests itself to my mind, and that is: If a blizzard lasted seventeen days from the north-east over Scotland—as it did—and continued cold and inclement all summer, and the whole summers of 1902, 1903, and 1904 partook of Arctic severity—as they did—and in the very slightest degree affected the several birds' choice of southerly aspects—how much more would the birds in more northern countries, nesting at much lower altitudes above sea-level, be affected by blizzards there of such duration as seventeen days. Daily I have seen "the drift *north to-day and south to-morrow*" of hundreds of migrants at the opening of summer in Russia, and this "swinging back and fore of the pendulum," so to express it, was most clearly and distinctly dependent upon the changes of weather, and of the temperatures which constantly took place at that season in northern Russia. Those who have never seen—witnessed for themselves—this distinct phenomenon at a settled fixed point of observation, such as Ust Zylma was to Seebohm and myself in 1875, can scarcely realise its rhythmic pulsing recurrence—*to-day, to-morrow, and for days together.*

A TYPICAL DOTTEREL MOUNTAIN.

By 1905, I think, the patent increase of this species became even more pronounced. Situations utterly deserted for many years, or at least never yielding even single returns of individual birds, but which localities were formerly known as the haunts of the small migratory flights in spring, again were revisited. Instances are not isolated (see *Annals Scot. Nat. Hist.* for October 1905). Besides, other evidence came up before me whilst I was "on survey" in Tay and Strathmore in this season of 1905, which satisfied me of the correctness of information which I had gathered from other quarters previously. And there can be no reasonable doubt about the extension of the breeding range to much further south localities where the experienced eye tells distinctly that the contours of the hills are suitable to the requirements of the birds.

I have other notes on the distribution of these birds both on migration in spring and autumn, both inside and outside the present area, and also recent details of their increased dispersal as a breeding species, but I have said enough in this place.

I will only refer to one or two more facts which have come to my knowledge since I wrote the above. Never before have I been able to record a specimen of the Dotterel in Stirlingshire; but on May 13, 1905, one was brought to me which (evidence proved) had been killed by a barbed wire fence, the flesh having been ripped with a longitudinal gash under the wing. It was picked up at the side of a barbed wire fence, and brought to me by a miner of the name of Duncan the same day it was found, and I have had it preserved by Mr. Knight, of Glasgow. Another was obtained under somewhat similar circumstances near Edinburgh by Mr. Tomlinson, and brought to Mr. Eagle Clarke. Both are recorded in the *Annals Scot. Nat. Hist.* for October 1905. It may indeed be worthy of remark that the occurrence of the (female) bird in Stirlingshire and the birds of the more southern localities may have been in intimate relation. I do not lose sight of a very old record of the species having been known to frequent certain slopes of the Campsie ranges of the central hills of Stirlingshire. Possibly here history may be found repeating itself.

And yet another fact is that the wire fence which was in process of erection, in May-June 1905, to separate the adjoining properties of Sir Neil Menzies and Drumouchter Forest, is stated locally to have banished the Dotterels from the hill of which I give here an illustration as a "Typical Dotterel Mountain." This is easily understood by any one who is acquainted with the habit of these birds of flying low over the ground at only an elevation of a few feet above the plateaus which are their favourite haunts among our mountains. I had directed Mr. R. Kearton where to go in 1905 to obtain photographs of this bird in the nesting season, and he received this information (for what it may be worth) from local sources. He succeeded in getting the desired photographs, however, at another position in the neighbourhood, and I am indebted to him for copies and the use of his negatives, which he desires me to say were granted on account of the help which from time to time I have been able to give him in his particular pursuits. (See *ante*, p. 298, and illustrated title-page.)

I have lately ascertained that these birds are also now known to nest at one locality to the south of Loch Tay, where they did not do so until this year, 1905. A second locality, still further south, remains uncertain, though there is no reason to doubt that it forms at least a resting ground for *a few* birds on the autumn (August) migration, because both old and young have been seen there in August 1903.

Similarly, I have seen an immature bird in Mr. Frost's collection at Crieff, which had been shot on one of the moors of the lower glens of the Forfarshire Grampians during the Grouse season of 1903, and which was at the time reckoned a rare occurrence. This was rather a late occurrence, viz. in September of that year.

### Vanellus vulgaris, *Bechst.* Lapwing.

Common. Resident. Breeds.

It was said by Col. Drummond Hay to have failed in numbers considerably by 1878, and at that time to have been much scarcer than it was some thirty or forty years previously.

I believe this has righted itself again to a considerable extent since they came under the protection of the County Councils under the Bird Protection Acts, though there may still be room for some more improvement in some localities. Since the decrease mentioned above, Col. Drummond Hay relates that he "has seen whole fields of autumn wheat (especially after a crop of beans) so utterly destroyed by slugs, that they had to be resown."

I sometimes wonder whether, if the Lapwing again becomes scarcer, such scarcity will be caused by similar influences as formerly, or be brought about by an undue increase of *preserved vermin like clouds of Starlings.* I have long noticed that, where formerly Starlings used to attend regularly in the company of their nearer relations the Rooks, now, and for years back, Starlings attend much more upon the flocks of Lapwings than they ever did before. They had first eaten up all their cousin's grub, and then shifted their assiduous attention to a bird's resorts that never did them any harm, nor in any way had ever interfered with them. They are well worth watching, I am convinced from what I have already witnessed.

Eggs of Peewits were sent to London in those days in exchange for Pheasants' eggs—a fact I was not aware of in any other part of Scotland. Drainage also was a factor in their decrease.

In the north-east, Don spoke of them as decreasing, in *his time even*.

But now in the same districts Mr. Milne says of it: "Very common, and breeding all over in the north-east," and forty dozens of eggs were in the hands of one local agent in one week—he paying a shilling per dozen for them (*in lit.*, 23rd May 1896).

They were common in Rannoch in 1901 (Godfrey), and generally distributed in the south-west around Glen Ogle and Lochearnhead (Godfrey); and all the way up Glen Dochart they are in evidence, though not in such numbers as to attract too much attention. They reach almost up to the dividing ridge between TAY and ARGYLL. Of course they are also not rare around Loch Awe (ARGYLL).

I never found them, however, at all common at or near Dalwhinnie in the north, though increasing in numbers down the valley of the Garry, as also down the valley of the Truim of Spey (MORAY).

There was an old Scottish Parliamentary Act ordering that "the eggs of the Lapwing were to be destroyed," in order "that these birds might not go south, and become a delicious repast to our unnatural enemies the English." So it appears that the poor Lapwing has had to go through many ups and downs in its history; and even at these eleventh hours their eggs still minister to the "depraved appetites" of the "belly of the world"—as I have more than once heard London denominated, even in *Ultima Thule*, by an Orcadian. If I remember aright, he was referring to the ultimate *resting*-place of a box of seventy-two lobsters!

## Strepsilas interpres (*L.*). Turnstone.

Winter visitant to the coast. But not so abundant as in many other parts of Scotland. Sandy shores are not so much to their taste as rocky places, which they usually seem to prefer in company with the Purple Sandpiper. Thus the rocky undercliff and foreshore, or rocky islands in the west, are by far preferred. They may even be termed rare on this east coast; but examples are obtained, even in inland situations at rare intervals, or at least at landlocked localities, like the Montrose Basin. There are specimens in the Montrose Museum and one in Drumtochty Castle, "obtained some years ago" (J. Milne).

### Hæmatopus ostralegus, *L.* Oystercatcher.

Old Gaelic name, *Gille bride* (old *Statistical Account*, vol. xvii. p. 251). Also it is called *Chalder* and *Chaldrick.*

It is somewhat curious to find that such very slight notice is taken of this conspicuous species in any of the parish accounts in the volumes of the old *Statistical Account*, nor is any mention made of its nesting along the banks of the rivers of the east. As long as I can remember the haughs of Tay, for instance, the Oystercatcher was prominent there in the nesting season, though when I first became aware of the fact I certainly felt surprised, because I had seen at that time so few accounts which drew attention to the fact. I refer to a matter of some forty-five years ago—say 1860. Is it possible that these inland and river haunts have only become occupied in comparatively recent years, and *that* to the almost total desertion of maritime haunts along our eastern seaboard? Certainly it is now quite a rare bird on the seacoast of the area; and it is quite conceivable that if it was at a former time commoner there in the breeding season, that it has been driven away by constant persecution and nest-robbing, and came to search for—and find—safer harbourage.

But even so early as Don's time, he included it as "frequent by the side of the Esk."

Whatever the prior habitation may have been, that at the present time is distinctly riverine and not maritime in summer, and they include almost every main river where the required stony or gravelly banks and beaches are found, though the birds often breed at considerable distances from the river on the flat haughs and on the newly sown cornfields.

They arrive about the 15th April, but in some years earlier, and in some later, just as the seasons are early or late. Even on many small waters or their enclosing valleys some are to be found nesting, in preference to the shores close at hand. Instances of this may be found on the small water of Bervie, and in other parts. Others go far up the main streams, and follow up in some cases almost to the sources; thus, as far up the Tummel and Garry as Loch Garry—

though the hard, rugged bed of the latter river does not appear to hold out great inducements after Blair or Struan is passed. In the same way they ascend as far as Loch Eigheach, on the Gower river, and even beyond into the eastern part of the Moor of Rannoch; but I have not learned that they reach so far as Loch Luydon or Loch Baa.

Thus it will be seen that the Oystercatcher in our eastern districts is far less of a coast-frequenter than of an inland nester; whilst on the west coast it is comparatively rarely seen inland, and literally swarms among the rocky islands of the Inner and Outer Hebrides, and to all appearances vastly prefers the rocky haunts there to the very different sites it chooses to occupy in the east.

They seem to push up the Truim water (which flows to Spey in MORAY) almost to the watershed at or near Dalwhinnie, but are not to be seen on the TAY side of the same watershed nearer than Loch Garry, and not there very often.

But in the winter the Oystercatchers throng down, and finally assemble in vast flocks upon the "mussel-scalps"[1] of Tay and Edenmouth, often to the extent of thousands, as I have frequently witnessed from the far end of the St. Andrews Golf Links. In the muddier "slinks" of Forth, and the Stirlingshire shore, where fewer mussels occur, the flocks of Oystercatchers are proportionately smaller—say hundreds instead of thousands.

It is quite worthy of passing remark that, while no note is taken by the Rev. Mr. M'Connochie of the Oystercatcher remaining to nest around Guthrie or the lochs of the Forfar district, he mentions that they are constantly heard passing overhead at the spring migration period, and that they occasionally visit these same lochs.

It is included as a resident in north and north-east Fife; but I think this can only be to a very limited extent—as a breeding species.

## Family **SCOLOPACIDÆ.**

### [**Recurvirostra avocetta**, *L.* **Avocet.**

Very rare occasional visitant.

Dr. Dewar gives it as "Very rare—Montrose Basin." I have failed to obtain anything more definite regarding this specimen, except that it has been in the Montrose Museum for upwards of twenty years, and that it had been shot in the Basin. I, however, elicited the fact that the donation book of the Museum has been lost, and there is no account of it in the annual reports of the directors. For all practical purposes it may, I think, repose in brackets.]

### [Himantopus candidus, *Bonnat.* Black-winged Stilt.

Very rare, if not indeed of doubtful occurrence.

Don, however, records the statement that he himself saw these birds—one in Glen Clova in August 1793, and mentions another seen on Ben Lawers; and these records are duly accredited in Mr. R. Gray's *Birds of the West of Scotland*, p. 303, and were given place in Yarrell's *British Birds* (1st ed., vol. ii. p. 560).

These are of such ancient date, as mere occurrences, that they want some freshening up. Therefore I put them in square brackets, from which I will at any time be glad to have them removed again. I do not necessarily disbelieve in them; but their occurrence appears to me to be so indefinitely stated as to have little or no value in the fauna. Also, they are recorded from what appears to me to be such unlikely localities, that I cannot suppress a doubt as to possibly incorrect identification.

Sibbald, it is true, had also recorded two from "Scotland" (Yarrell, *loc. cit.*), probably the same birds.]

### Phalaropus hyperboreus (*L.*). Red-necked Phalarope.

Extremely rare visitant. Formerly summer visitant, and bred—as I consider we must accept Col. Drummond Hay's evidence given below, *q.v.* Col. Drummond Hay spoke of it as nesting within the bounds of the area, to his own knowledge, fifty years ago, at a certain locality in Perthshire; but he spoke of it as "quite ancient history." Fifty years ago at his time of writing would put the date at about 1830. The locality was made known to me, and is well known to me otherwise. Surely and certainly the species has not remained there, or, if it has, it certainly has not increased in numbers, if indeed it has ever really bred there since. But the character of the locality is eminently suitable.

It is true that one bird has been seen near the said locality—in 1876,—but there was no trace of another, nor could any nest be found on that occasion. However, as I believe that Phalaropes pair for life, the probability remains that there was another bird there, and I will even go the length of admitting that that season may have produced young at that place. Yet we must remember that while "one Swallow does not make a summer," also "one summer is not always made by the advent of even more than one Phalarope." It is now (*i.e.* 1905) eighty years since Col. Drummond Hay knew of its nesting in Perthshire, and he told Professor Newton of it. (He was then Maurice Drummond.) He told Horn at a later date—about 1879—and about 1881 he mentioned it to me at the Conversa-

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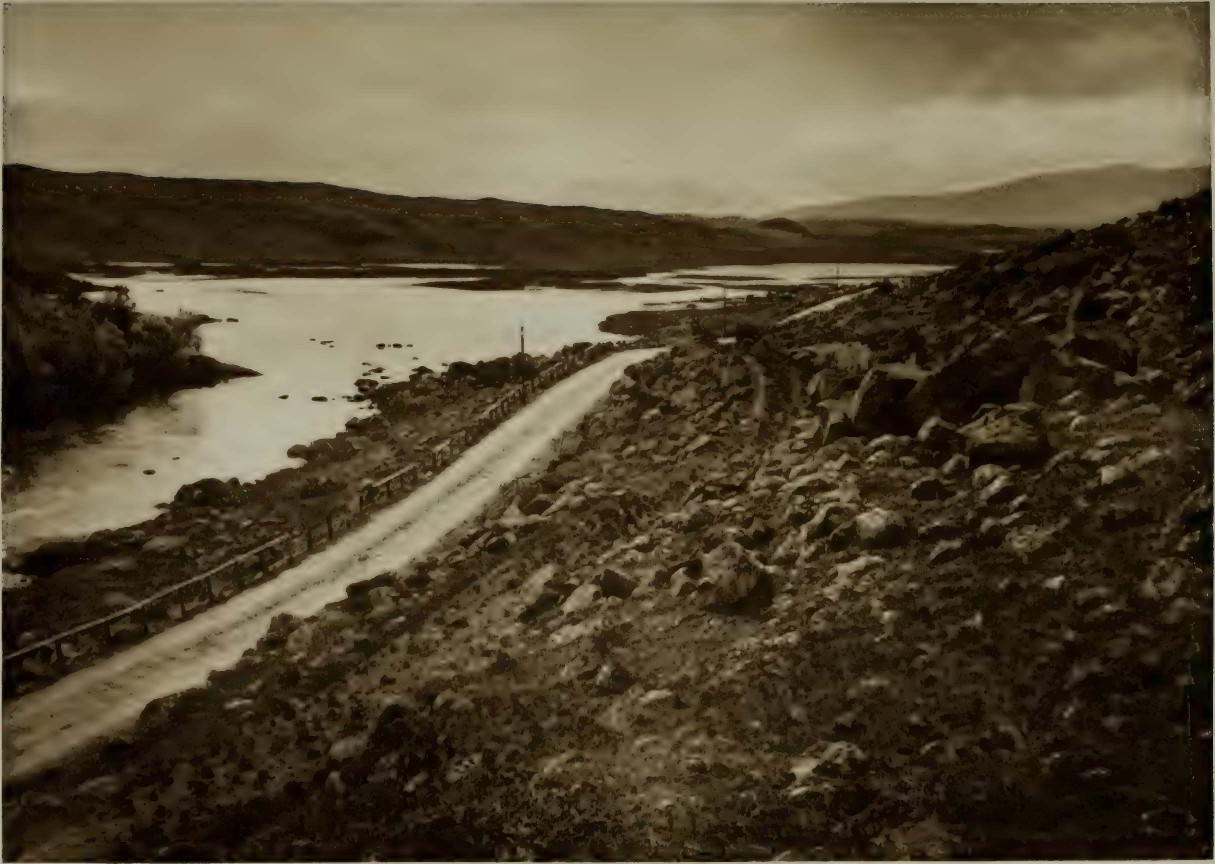
[1] Pronounced *scaups.*



LOCH EIGHEACH.

OLD NESTING PLACE OF RED-NECKED PHALAROPES.

MOOR OF RANNOCH.

zione of the New Society of Perth—or about that time. Col. Drummond Hay mentions it also in his *Fauna of Tay.*

Now, all other evidence anywhere in Scotland—I speak here of the mainland, not the isles—dates quite as far back, if not indeed further, *i.e.* all such as can be taken seriously. Therefore, if at one time (which may readily be credited) it did breed at localities on the mainland (*vide* St. John and Dunbar as to Sutherland; and the above), I think any other later accounts can, in absence of fully authentic proof, be only held to apply to "birds seen on late passage" (or "visiting committees," so to speak, taking a "last long lingering look" at their ancestral halls!). We know also that it has been recorded that this sub-arctic species has been discovered in later years to have nested, and indeed taken up apparently a fixed residence, at a locality in Ireland—quite a new discovery to British naturalists. We know also how the breeding season of these little birds varies wonderfully in the time of its commencement and in duration at even the head-centres of their present distribution in Britain—viz. in the Shetlands, Orkneys, and Outer Hebrides. It can scarcely be unobserved that the increases, which I have abundant evidence of, even at their headquarters, have taken place along the lines of their present progression; and the question naturally arises, "Do we at this present time owe our dispersal of Red-necked Phalaropes to a north-eastern source, or to the shorter route and headquarters in the north-west—say Iceland?" That can and will be answered in time by those appointed to work out all the statistics on migration; and I feel sure these could not be intrusted to better men than are now engaged upon it.

As Professor Newton, with whose opinion I am in perfect accord, says: "It is possible that the present distribution of this species in the Outer Hebrides, and in Shetland and Orkney, for all we know (or can prove!—J. A. H.-B.) may have taken place from a mainland (and older—J. A. H.-B.) distribution."

I say "just so" to that; but I cannot consent to go back to any theoretical hypothesis there, and desire strictly to adhere to facts before us, and to actual deduction from already provided history. (And at this point I wish simply to ask my readers to "read back" and form their own ideas as to the dispersal of this species, indicated in prior volumes of this series, and carefully consider the claims of a north-west *versus* a north-east origin.)

I may perhaps be allowed, at this point, to express my own opinion, that fifty years ago, or nearly eighty years ago, the Red-necked Phalarope was *a decadent species as breeding on the mainland of Scotland!* I will not say what I believe as to the dispersal taking place from the mainland to the north isles of Shetland, and at the same, or nearly the same time, to the Outer Hebrides, but only make one remark, and that is: I believe that the strength of the dispersal "wave," which had at one time populated the mainland suitable localities, ceased to be a factor some fifty or eighty years ago. Just as in the same way I have endeavoured to express my belief under species of very similar "*supposed laws*" (?) in the processes of dispersal.

To return to the immediate values in *this* area—and its volume,—the Red-necked Phalarope can certainly claim the values I have apportioned to it at the head of this article; and the following records may be cited:—

1813.—Don mentions it in his list, but with no remarks.

1874.—Montrose Basin, 23rd December 1874, and October 1877.

1875.—Mr. Whittaker saw one bird in full plumage in the interior, in a locality in the north-west; and I have already referred to this instance of a summer occurrence. The date was the 20th June 1875.

Without desiring to enter upon mere "theoretical deductions"—if there be such an anomaly!—I wish only to draw attention to a singular grouping of these recorded dates, *i.e.* between, say, 1874 and 1877, raising the possibility, if not the probability, that birds *were* bred at the old haunt or near to it; and other two recorded from the Montrose Basin as above given.

Should this reading be indeed correct, then there is another significance in the above grouping of dates. It may be that it affords yet another indication of how difficult it is, *in these days*, to preserve our rarer birds. The Bird-Preservation Acts, and the Bird-Preservation Societies and County Councils endeavouring to carry out these Acts, and the endeavours of others, may have done, as I believe they have, some good; *but so long as a ten shillings gun-licence continues to be granted to all and sundry to carry and use a gun, for shooting all that is not game, we seem to be only robbing Peter to pay Paul!*[1]

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[1] An increase in numbers in several species—as may be gathered from my accounts under some of these—appears to have taken place about 1874, and since then,—*i.e.* as compared with the decrease which Col. Drummond Hay frequently takes note of prior to that time in certain of them, and up to 1880 in others. He accounted for it then, in some measure, by the imposition of the gun-tax, which "has put a salutary check

It is said to be a rare occasional visitor to north Fife, but I have no definite notes or actual records.

### Phalaropus fulicarius (*L.*). Grey Phalarope.

Very rare winter visitant.

Booth procured a single bird in Glen Lyon. This was in 1866, when there was quite an irruption of the species to this country, as was chronicled at the time by Mr. John Henry Gurney.[1]

Col. Campbell records another, which is now in the Perth Museum, and is probably the same which was procured during the autumn migration at the lighthouse at the mouth of Tay in 1883 (*Proc. of the Old Soc. of Perth*, vol. i. p. 155).

There is also one in the Montrose Museum, obtained at Montrose Back-Sands,[2] September 9, 1901 (*fide* Mr. Towns, and Mr. J. Milne *in lit.*).

And Millais possesses one which was killed at Tayport in October 1885.

### Scolopax rusticula, *L.* Woodcock.

Old Gaelic name, *Coileach coille.*

Localities mentioned in the old *Statistical Account* are—Kincardine, Muthil, Weem, and Dowally, in the latter of which it is stated: "A Woodcock was shot on 12th August, and was supposed to have been bred there," or (?) to have bred there (*op. cit.*, vol. xx. p. 473, 1798).

Col. Drummond Hay has an excellent article upon this bird, which is well worthy of the attention of our County Councils, our proprietors, and all who are interested in the due preservation of our game and other birds. He drew attention to the former extension of the open time to shoot Woodcocks in March, and (as is well known, but carelessly ignored by those who ought to know better, and those who legislate about things they know little about, and leave the carrying out of the same to others who know and often care less!)

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upon the indiscriminate slaughter along our hedges and ditches, etc." But though that may temporarily have been a check, I have my doubts *now* as to any permanent good achieved by 1904. As I believe, and have expressed before (see text above), great difficulty exists, and will continue to exist, so long as this ten shillings gun-licence is granted to all and sundry amongst our idlest shore-poppers, etc. "What are you doing shooting so many birds, and not picking them up?" "Oh, just shooting them for practice." The question was asked by me, and the answer was given by one whom it was considered was a sportsman and a gentleman, and who is now a judge!

[1] *A Summary of the Occurrences of the Grey Phalarope in Great Britain, during the Autumn of* 1866 (London: John Van Voorst, 1867).

[2] "*Back-Sands*," another term for the "*Basin*," as elsewhere mentioned in the text.

—I say, as is well known—this is the very time at which these birds *ought not to be killed.* Why ought they not to be killed? Because, between the 12th and the 17th of March the "return of the Woodcocks" takes place, on passage to their breeding haunts in the north, both of our own isles and to the greater nesting grounds of the forests and birch-woods of northern Europe; while at the same time many of our own home-breeding birds, even close to where some may be killed at the late date of 15th March, are actually engaged in incubation, or at least in preparing for the peaceful occupancy of their summer homes.

Horn makes a remark, viz. that "since Woodcocks began to breed in any numbers in the north of Perthshire, there has been a marked falling off in the number of the birds which fall to the gun when beating the covers at the end of the season." Naturally, such is to be expected. The birds are not entirely sedentary, and indeed may still have really migratory impulses; and the birds bred at any one place may be expected to leave for some time at least after they begin to occupy new localities. And if sport from birds of passage is to be expected, then they must be looked for and expected at their regular migratory seasons. If, on the other hand, the covers are not shot over till the end of the season, then most have passed by, and those bred there have long before departed. But where all conditions, on the other hand, are favourable, as in some places in the milder west, birds do become resident, only shifting ground locally as necessities arise; but if the circumstances do not continue favourable and develop unusual extremes, then the birds will again exercise their right to "*get out of that.*"

Here, *i.e.* in the centre of Stirlingshire, and on my own ground, many more birds are now resident than was formerly the case when they were only of the "value of spring and autumn visitants." And at no time has such marked evidence of this change taken place as within the last three years, and most remarkable of all in the years of 1902 and 1904, as I have several times already pointed out (and which may I be permitted to ask some of my readers to "read back to"). (See the last volume of this series; also since its appearance in October 1904 the further remarks in the *Annals Scot. Nat. Hist.*, 1904, not to mention some excellent statistical work done by Messrs. Buchanan in CLYDE, which I hope to see reproduced in some form shortly.[1])

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[1] Messrs. Buchanan have expended great trouble and immense correspondence over this work—to me fully convincing in its teachings—having collected large masses of

We have seen that the old *Statistical Account* spoke of the probable nesting of the Woodcock in Dowally parish prior to 1798.

We then find that Yarrell records information which he quotes from the *Mag. of Nat. Hist.*, viz. that in 1837 old birds were seen carrying young ones; as well as other accounts of their nesting in other parts of Scotland in his 1st edition, vol. ii. p. 591. About the same time—in MORAY—two nests were found in 1837; and in DEE, at Castle Forbes; and he quotes the facts brought forward by Sir Francis Mackenzie, Bart., of their breeding at Conon, which I have referred to in the last volume of this series.

Woodcocks appear to be subject to considerable fluctuations in the numbers reaching this country, or otherwise select very different routes in some seasons from those selected in others—as, I think, there are abundant statistics to show, if these statistics be carefully compared year with year. Thus, in 1878-9 there was a general scarcity complained of in many parts of Perth and elsewhere outside of TAY. At Ochtertyre, where from forty to fifty are usually obtained, only five were shot there that season (*fide* Mr. Hugh Miller of Westerton). This is only *one of many* similar accounts which have reached me.

In 1896 Mr. Milne quotes it as resident in the north-east, and as having bred in the woods of Drumtochty and Monboddo, whence he obtained eggs as great rarities then! Since that time he has described the actions of the old birds when carrying the young, from observations made by himself, and as have been described many times by others.

Woodcocks breed in Rannoch, but not, says Godfrey, abundantly, "only sparingly" by 1901; and a few also "breed about Edinample and the west end of Loch Earn" (Godfrey). They may be seen "roding" over the "birch-braes" far up the Tummel, as I have myself witnessed.

The late Rev. H. A. Macpherson has described the "roding" of Woodcocks at some length, as observed by himself in the Tay valley, which I cannot refrain from quoting fully later on. These notes date May 16, 1900.

By 1904 evidence is decidedly forthcoming of a distinct southward movement *in bulk* of Woodcocks in the nesting season, and *late*

statistics in CLYDE, and "plotted" the results upon a large scale map. Writing here from memory, I think I am correct in saying they had returns of some sixty nests on one estate to the south-west of Dumbartonshire, and forty-five upon another adjoining. This was in 1904.

*in that* nesting season. Mr. James Davidson, of Roughhill, informed me of this, as *seen to be the case* in many localities south of the Grampians. He says: "Evidence distinctly points to a southward movement of Woodcocks along the glens of the south slopes of the Grampians in many places, during the nesting season of 1904" (List of birds of the district around Meigle; and in letters—Mr. Davidson being tenant of shootings there). See also under Dotterel, *ante*; and I have myself laid great emphasis upon the same movement, in 1902 and in 1903 and 1904, of both Woodcock and Snipe (*Fauna of North-West Highlands and Skye*, and elsewhere, *q.v.*).

As regards the abundance in the Tay valley at the date of 1900, I cannot do better than give the descriptive passage from Mr. Macpherson's notes referred to above, as follows: "On 16th May 1900, Grant Fergusson told me that a pair or two nest at Baledruand, where he found a young 'cock' last year. The same evening I went up to Macdonald's house (Pitlochry). Hardly had we entered the woods when we heard the whistle of the cock. It was a fine night, about 8.30 P.M., and we continued to hear them for the next hour; nor were they ever quite out of sight; we twice saw two birds flying together: they generally flew high, but sometimes only tipped the tops of the trees. It was generally the peculiar whistle that made us look up, but some birds used a frog-like croak—whether a sign of alarm does not appear.

"I sat up at Macdonald's cottage until 9.30 P.M, and cocks were in view the whole time, chiefly flying high and as single birds. As we returned, the quick whistle reached us again and again, and even after we crossed the bridge we heard the quick call-note, and saw the birds which really accompanied us as far home as the Miss Cowans. It was a fine clear evening, and I found it delightful to sit on a knoll, commanding the Tummel valley, and watch the birds wheeling round in a wide circle. The birch-trees were clothed in fresh verdure, and the charm of the scenery added to the charm of *Scolopax* in his home—the 'hottest corner for cock' that I ever saw, judging from the show of birds; and a considerable number of Woodcocks would seem to nest in the neighbourhood."

The Rev. H. A. Macpherson then goes on to describe in equally felicitous language the experiences he had met with in the barer tracts of Skye, and the different conditions which one may expect to meet with there. He continues: "If you go out at daybreak, a tired cock gets up almost under your foot in the roadway. When you passed by a few hours earlier, it had not arrived. You go on, and you flush others, here and there, and in all manner of places. You climb up into some *mauvais pas* along a sheep-run, and a cock rises from under the shadow of a boulder. You push on across the marshy ground beside the loch, and the owl-like flight of the cock again meets you on the way. You strike upon the course of the burn and return home another way, and you find cock here and there in the heather that flanks the wild watercourses. Tired birds seem to flutter here and there, and are different from the home-bred birds. And yet they chiefly migrate. In some seasons they do not leave in early autumn, but remain to be shot on the ground upon which they were hatched out a few months earlier. But this is the exception; most of the home-bred birds migrate, and are replaced by foreign flights of cock in October and November. Yet their ground here—*i.e.* in Skye—abounds in springs, and seems suitable to meet their wants at all seasons."[1]

"Woodcocks," says the Rev. Mr. M'Connochie, speaking of his immediate district, "are fairly common, nesting in the neighbourhood, and common on Montreathmont Moor. Their double call-note is a familiar sound at flighting time."

To save space and reiteration, allow me here to refer *careful* readers to some remarks on climate in my introductory chapters, and to add here that Woodcocks have again, in considerable measure, moved further south in the spring and "early summer" of 1906, to date of May. In central districts we have not more than half of the usual number of pairs of Woodcocks nesting, and only about one-tenth of the number which nested in 1902 and 1904. But, on the other hand, I have received evidence that *never* before have these birds bred so freely *south* of FORTH as in 1905 and 1906. At Tyninghame my friend Mr. C. C. Tunnard, now resident there as factor, is my *excellent authority* for that district. More and more do I become confirmed in my own thorough belief, oftentimes expressed before through the volumes of this series, that where retrograde movements of birds' distribution can be traced—as I hold I *have* traced those of several species—it is caused by *altered conditions and retrograde amenities of climate* "crushing down" the southern limit, then causing prompt congestion of lower latitudes, and again resulting in further outbursts along the "line of least resistance," which, in the case of this species, surely has a retrograde direction. I am aware ornithologists of very high standing have privately expressed to me a contrary opinion, but with all the data I have at command, during collecting of many years, I still adhere to my belief—indeed, more strongly than before.

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[1] It appears to me to be still quite uncertain to what extent, and in what areas, and during which seasons, Woodcocks are really migratory. In some parts of the west of Scotland it appears to me to be quite a question deserving of greater and closer attention.

### Gallinago major (*Gmel.*). Great Snipe.

Rare occasional visitant in autumn.

Two were shot at St. Andrews by a gardener named Hutcheson, and were reported to Mr. R. Gray by Mr. (now Col.) R. G. Wardlaw-Ramsay (vide *Birds of the West of Scotland*, p. 311). These are now in the St. Andrews Museum, but the labels bear no dates; and one appears in Small's Registers, under date of 22nd September 1896, sent by my old friend Mr. J. R. W. Cook for preservation.

Col. Drummond Hay has also recognised it on the banks of the Tay. He himself saw one on the 4th September 1874, in the Carse of Gowrie.

Millais writes in his notes: "I have seen four Great Snipes in the Bog of Murthly at different times. One of these I shot in September 1887, and the same season another appeared and stayed for several days. A friend who was most anxious to shoot a Great Snipe (and who is one of the best shots I know) happened to be staying close by, so I telegraphed to him and he came at once, all agog to slay the rare visitors. After driving the big Bog the Great Snipe was moved, and flew over to Bog-bushes, another marsh close at hand. My friend was placed behind the 'blind' there, where the bird was almost certain to pass on its way back to the larger marsh, and the beat began amidst hushed expectancy. Soon the beat advanced, and up got the Great Snipe, going with slow, Woodcock-like flight, straight over the head of the famous shot. But, alas! excitement or some other reason caused the 'worst miss on record'! and the Great One vanished slowly out of sight into the unknown."

### Gallinago cœlestis (*Frenzel*). Common Snipe.

Old Gaelic name, *Croman loin* (old *Statistical Account*, vol. xvii. p. 251).

Resident. General. Breeds.

Fairly common in the north-east (J. Milne). This was in 1896.

Very abundant all along the foot-hills of the Grampian ranges at many localities in the season, and especially so in the summer and autumn of 1904 (see Woodcock and Dotterel).

Col. Drummond Hay records a buff-coloured variety of the Common Snipe as having been shot on the north bank of the Tay, opposite the mouth of the Earn, on 3rd October 1892. The example is now in the Perth Museum (*Annals Scot. Nat. Hist.*, vol ii. p. 44, 1893).[1]

Millais says: "Large numbers of Snipe rest on passage in Perthshire, especially about the Errol marshes, Loch Leven (FORTH), and Murthly Bog. I have seen twenty to thirty couple killed in a day at Murthly."

[*Obs.*—A Sabine's Snipe has been recorded by Mr. R. Gray (*Birds of the West of Scotland*, p. 514). This is in a MS. note by Mr. Gray, in my copy, with interleaves, bound in two volumes. The bird was brought to market with Golden Plovers, about the 9th March 1872, and was seen by me—J. A. H.-B.—at Sanderson's, of Edinburgh, 10th May 1872; and I find that I made the note: "Fourteen tail-feathers; colour dark and rich brown; tarsi shorter than in examples of the Common Snipe"; and I have the additional note: "Keddie told me he had known of another which occurred on Tents Muir, Fife, but he had no note of the exact date."]

## Gallinago gallinula (*L.*). Jack Snipe.

Winter visitant. General. Fairly abundant, and regular in its visits. But some seasons more abundant than others.

They arrive about the first week in October as a rule, but some seasons earlier. Horn, indeed, told me he had shot (or seen ?) Jacks as early as the 12th August in Strathtay, but I have never known of birds so early anywhere else in Scotland, and certainly not within the present area.[2]

In the north-east Mr. Milne only quotes Col. Drummond Hay for that district—"a winter visitor."

Col. Drummond Hay told me that the Jack Snipe was formerly more abundant, and used to frequent the ooze of the tidal reaches of the Tay, but does so no longer (1880), or to a less extent than before, on account of the hardening of the surface by successive layers, and the increasing depth of the mud.

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[1] Col. Drummond Hay tells us he saw, in a box sent from Shetland, two hundred Snipes' eggs, "all blown in the most approved manner, to be consigned to a London dealer as ordered"; and he adds, as a rider in connection with decrease in their numbers of late years: "There are hosts of gunners." Thus both ends of the candle are being burned!

[2] Recent correspondence in some of the sporting papers (*e.g. The Field*, September and October 1904) expresses surprise at the appearance of Jack Snipes in September. I possess many records of their appearance between the 27th September and the 6th October 1903, and in September 1904, and others previously. Witness the vast numbers seen by Mr. Eagle Clarke upon the Flannan Isles in September 1904 (*Annals Scot. Nat. Hist.*, 1905, p. 82), and again in Fair Isle in 1905 (*ibid.*, 1906, p. 75).

Mr. R. Gray found the Jack Snipe "nowhere so abundant as in Forfarshire," and relates obtaining "six or seven brace in the course of a short turn with the dogs," in the marshes in the neighbourhood of the county town. (See also *Birds of the West of Scotland*, p. 313.) This refers almost certainly to the marshy edges of the Loch of Forfar.

## Tringae.

There appears to be rather a scarcity of Waders on this coast, except at the estuaries of Eden and Tay, and at the Montrose Basin. This is, however, only to be expected, as the coast-line is not so suitable for their habits as the larger estuary of FORTH. Col. Drummond Hay continually speaks of this deficiency, and compares it with former comparative abundance of many species, and he ascribes several different causes. It may be difficult to compare the numbers found, for instance, along the much greater areas of mud-flats of FORTH, and those of the smaller estuaries, nor perhaps would such a comparison assist us greatly in arriving at conclusions as to the routes of migrants, at least with any certainty. Whether the trend of these coast-lines has any definite influence or not upon the migration "flights" and flocks of Waders, I will not now discuss, but leave over for further consideration, only adding here that any very remarkable concentration appears to me to be non-existent.

### Tringa alpina, *L.* Dunlin.

Abundant. Resident in some numbers. Breeding. Enormous accessions, however, are only autumn migrants and winter visitants.

It appears from Col. Drummond Hay's notes at various times that these Waders were at one time seen in immense flocks as far up the estuary of Tay as Perth; but that now, *i.e.* in 1878, though still abundant, they do not come up so far; and Col. Drummond Hay further remarks that "it is somewhat curious that with a single exception—viz. one shot near the Stormontfield Ponds—four or five miles above Perth, they have never been met with in the Highlands or further up the Tay." But with reference to the above remark, I have the statement from Mr. D. Dewar that they breed "on the tops of the hills to the south of the Loch" (Tay); and years ago Mr. Dewar sent me the drawing of a Dunlin and its egg taken by himself there, which I still possess, and which was so well executed as to leave not the slightest uncertainty in my own mind that his statement was perfectly correct; and since then I know that they breed close to the southern boundary of TAY, high up on the plateaus around Ben Chonzie, as well as upon much lower ground on the confines of FORTH.

At p. 319. Mention of The Little Stint (*Tringa minuta*) has been omitted. It is known to me to occur on the banks of the estuary of the river Eden, and Mr. Wm. Evans knows it occurs on the Tay estuary, though not so abundantly as it does on our Stirlingshire coast, or on many other parts of the Firth of Forth.

In 1896 Mr. Milne, whilst quoting Col. Drummond Hay, adds "resident."

Godfrey adds "Dunan, Rannoch," as a nesting locality.

In 1905 I was informed that these birds bred "in swarms" in some parts of Perthshire, but I have not been able to locate these places. Yet I know that a limited number are to be found breeding quite in the south districts near Crieff. And I am aware of other isolated localities where they are to be found in limited numbers.[1]

### Tringa subarquata (*Güld.*). Curlew Sandpiper.

Quite rare. Occasional visitant.

A Curlew Sandpiper is recorded from Loch Tay (Horn), as having been shot by Mr. D. Dewar. This seems to me a very extraordinary occurrence, and I can find no mention of the fact in the lists received from Mr. Dewar prior to his parting with his first collection to the Perth Museum.

Col. Drummond Hay had never met with it, even on the tidal shores of lower Tay, until one was shot there and added to the collection at the Museum. This was in the autumn of 1882 (*Proc. Perth. Soc. Nat. Sciences*, vol. i. p. 155).

Millais designates the Curlew Sandpiper as "a rare autumn visitor associating generally with Dunlins." He says: "I have only once seen a flock of Curlew Sandpipers. This was on the sands near to the ice-house at Tents Muir in September 1888. I killed four birds from a flock of about twenty." It is curious to find such a comparative scarcity of records here with its frequent and regular occurrence at the head-waters of the Firth of Forth.

Indeed, it would almost appear that it is a more regular spring and early summer passing migrant about the Tay estuary and Edenmouth than it is as an autumn migrant, examples in full breeding dress being far from uncommon well into summer.

### Tringa striata, *L.* Purple Sandpiper.

Rare winter visitant.

It seems curious to find how few records of this species are forthcoming. One was added to the Perth Museum collection—apparently the first recorded (*Proc. Perth. Soc. Nat. Sciences*, vol. i. p. 155).

But early in our chronology this bird appears to have been considered of rare occurrence by Neil, as he announces one as "a rare species of Sandpiper obtained near Portobello" (FORTH). Surely this must have been the result of a want of careful observation. As long ago as 1858, or say 1860, they were far from uncommon along the shores at North Berwick, and between that and Tantallon Castle; and I can well remember shooting several, and seeing many more thereabout, as early as I carried a gun, before I left school at Merchiston (*vide* Neil, in "Monthly Memoranda" in *Scots Magazine*, vol. lxxiv. p. 85, 12th February 1812).

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[1] Nowhere indeed can Dunlins be truly described as nesting "in swarms" upon the mainland of Scotland, unless possibly they may do so in Caithness. "*Swarms*," of course, is an unscientific and quite unsatisfactory estimate.

I must say I do not remember having seen any about the shores of Eden or Tents Muir at much later dates, but I do remember seeing a few close under the town on the under-cliff below Gillespie Terrace, St. Andrews.

Millais has it: "Occasional visitor to the south side of the Tay estuary, but common along the northern shore in winter from Monifieth to Arbroath, where there are more rocks." This, I think, describes its most representative value upon the coast north of the estuary of Tay.

Mr. W. Berwick does not seem to consider it at all common upon the coasts of Fife.

### Tringa canutus, *L.* Knot.

Abundant autumn and winter visitant.

Said to have greatly diminished in numbers of late years; formerly abundant on all the mud-banks of the tidal Tay (Col. Drummond Hay).

Indeed, there appears to have been an almost universal falling off in the size of the flocks of many tidal Waders frequenting the estuaries of Tay and Eden within Col. Drummond Hay's recollection—*i.e.* up to the times of his writings, say till 1880.

### Machetes pugnax (*L.*). Ruff and Reeve.

Rare autumn visitant.

A fine adult male, but without the "ruff," being in autumn plumage, was shot on the bank of the Tay, opposite Mugdrum Island, by Roger Davidson, Esq., Kinfauns House, in October 1887. It is now in the Perth Museum.

Another is recorded from Montrose (Director's Report on the Museum, Nat. Hist. Soc., Montrose, 1886-89); and one was got on the shore of Tents Muir on 27th August 1895. (*Annals Scot. Nat. Hist.*, 1895, p. 219.)

I am surprised at the scarcity of records as given for TAY. On the Forth estuary I have found them abundant, and have shot as many as five or more out of small flocks of a dozen or so.

There is one in the St. Andrews Museum labelled "Tents Muir, 1865."

Millais, however, considers it as a regular, though scarce, autumn visitor. He adds: "I have shot several both at Murthly and at Loch Leven (FORTH)."

### Calidris arenaria (*L.*). Sanderling.

Regular autumn visitant to TAY and Eden.

Col. Drummond Hay did not appear to think that it was regular in its visits to TAY in 1880, but I have known it as a regular visitor in FORTH at least as far back as 1860. I confess I had not observed it at Edenmouth, though I have been along the shores there at the right time on several occasions. Mr. W. Evans has found them there, however, not uncommonly—*e.g.* one in full summer plumage on 15th June; and "Sanderlings, Knots, and Grey Plovers at mouth of Eden all apparently in summer dress," on 31st July 1885.

A male at Monifieth, 29th August 1889 (*auct.* John Nelson); a female—the Scalp, Tayport, 13th May 1882,—both in the collection of Mr. Marshall, Stanley.

In the north-east, one "some years ago, in the Glen of Drumtochty; is preserved in the castle" (J. Milne). This is rather an unusual haunt, as it is not often found in inland localities.

It has been obtained on the North Sands of St. Andrews. One in the Museum there is so labelled under date of "October 1868."

Millais' notes have it: "Arrives generally in the last week in August. I have shot adults with a good deal of summer plumage remaining at this date. Common on all the sandy coasts."

### [Totanus macularius (*L.*). Spotted Sandpiper.

Very rare occasional visitant.

*Obs.*—One is entered in the list of specimens in the Montrose Museum, "Shot at the Montrose Basin in September 1888," but on consulting Mr. J. Henry Gurney's account of specimens of this species reported as obtained in Britain, Mr. Gurney dismisses this record (as indeed *all previous* Scottish records should be dismissed). It was recorded by Messrs. Mollison and Brewster, collectors and birdstuffers, and referred to by Macgillivray (*British Birds*, iv. p. 358). But as has been explained by Mr. Gurney (*Rambles of a Naturalist*, p. 260), the said Mr. Mollison possessed a copy of "Bewick" (*British Birds*), in which a plate given as that of the rarer species is really a plate of the Common Sandpiper; and this same plate has been the occasion of many—or most—of the erroneous records for Great Britain. I hope square brackets will here effect their purpose finally, as they do at least for this TAY area specimen.]

### Totanus hypoleucus (*L.*). Common Sandpiper.

Common. Summer visitant. Breeds.

Common in some seasons after the 16th April, but not appearing usually much before the 20th of that month. They were early in arrival in 1901. Generally distributed, and were common over the whole area in suitable quarters, by stream and loch-side, to a considerable altitude. Equally common in Highland and Lowland parts of the area.

### Totanus ochropus (*L.*). Green Sandpiper.

Rare autumn visitant. One was entered in the list of specimens in the Montrose Museum, "Shot in December 1882."

One was shot on the Earn by Mr. Pitcaithley in September 1883, and added to the Perth Museum; and Mr. Millais had also procured it on tidal Tay (*Perth. Soc. of Nat. Sciences*, pp. 155 and 182).

The latest account I have received of the occurrence of this bird is afforded me by Mr. W. Berry (*in. lit.*, 6th December 1905). He informs me that his cousin Herbert Purvis, of Kinaldy, saw a Green Sandpiper near St. Andrews lately, which he was near enough to identify as one of this species. This was in October 1905. Mr. Herbert Purvis verified his observation by the examination of a specimen in the Royal Scottish Museum afterwards, and had no further doubt of its correctness.[1]

### Totanus calidris (*L.*). Common Redshank.

Abundant on the shores and estuaries in autumn and winter. Resident. Breeds.

But the Redshank is not very abundant as a nesting species in the central districts of the area. A few breed about Logierait (1891), and again at Kirkmichael. It is local in the Earn valley above Crieff, where there are not many places very suitable to its requirements, such as marshes and marshy meadows; but it is commoner in the same valley below Crieff in the Vale of Earn, and along the course of the Allan Water (FORTH), which runs in the opposite direction to join the Forth at Bridge of Allan. Close to our boundaries on the south, also, it is commoner at several suitable straths and other marshy localities (FORTH).

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[1] So far as I can remember Mr. Herbert Purvis—many years ago in Sutherland—I feel convinced that he had a *keener eye for birds* than for *minerals*, and much preferred a wander over the hills *with me* than carrying a 16-lb. geological hammer up a 3000-*foot mountain*, to learn mineralogy with our mutual friend and good companion Prof. Heddle, of St. Andrews.

Resident between its summer haunts in the north-east and its winter haunts.

This is another species which is distinctly on the increase. In central Scotland the increase is very marked indeed. I consider it mainly due to a *natural* increase, and less to any "crushing down," even in 1906, but I cannot entirely leave out the latter consideration without doing violence to my convictions.

Very common in Rannoch, all the way between Loch Luydon in the extreme north-west and down the Gower river to Loch Rannoch and to Kinloch, and generally where suitable. Rare on Loch Ericht side, and not abundant about Dalwhinnie, nor at Drumouchter or Dalnacardoch, though I can remember it being more so about 1860. About that time also it was far from uncommon on the other side of the boundaries between Tay and Spey (MORAY).

Col. Drummond Hay spoke of it, along with other Waders, as having become scarcer by 1874 on the tidal parts of Tay.

Both at Dalwhinnie and in the upper reaches of Spey (MORAY) its haunts seemed to have been finally (?) taken up by the larger species, the Greenshank, soon after that time.

### [Totanus glareola (*Gmel.*). Wood Sandpiper.

Very rare occasional visitant in autumn (?).

Mr. Whittaker—in "Some Notes from Perthshire" (*Zool.*, 1876, p. 5101)—mentions a specimen of this species having been seen by him on the Moor of Rannoch—Loch Eigheach—on 20th June, but the bird disappeared about a week after. However, the description of the bird and colour of the legs clearly point to the bird seen having been the rather less rare Green Sandpiper, as pointed out at the time by the editor.

Meanwhile, as the only record, I must retain it in brackets.]

### [Totanus fuscus (*L.*). Spotted Redshank.

Doubtful. One is given as having been got at the Montrose Basin, but I have failed to trace the exact record. No doubt the loss of the records of the Montrose Museum makes many gaps in our sequence.]

### Totanus canescens (*Gmel.*). Greenshank.

Fairly common summer visitant in the interior. Generally wholly a migrant, but some only locally so, going to haunts by the sea where individuals may be seen almost all winter, but rarely in parties, and only as single examples. Breeds, and is increasing, or otherwise drifting south-eastwards from older occupations in the north-west, distinct decrease in their numbers being very apparent in localities west of the watershed of the main range of the backbone of Scotland, and a drift being quite observable all through formerly occupied haunts in the more northern portions of the north-west Highlands of late years. Intimately acquainted as I may claim to be with these parts of Scotland, I feel very sure of this fact, and, further, that though many reappear there at old haunts in the northern parts of the NORTH-WEST HIGHLANDS, and West Ross-shire, they do not stay to nest in any numbers as comparable with what was the case only some twenty-five years ago. This is well known to the intelligent natives, and men whom I have known there for nearly forty years as reliable in their powers of observation. I will not attempt to account for this change, though I do entertain certain views on the subject.

One other thing is also certain: simultaneously with this very patent reduction of their numbers in the north-west, they still maintained their numbers east of the watershed in Sutherland and Caithness; and also a most pronounced addition to their numbers has been clearly noticeable all down the Spey valley, as also up the Spey beyond Laggan, which brings us again close to our present area on its northern boundary.

Greenshanks bred in TAY as early as 1873—and perhaps a few years earlier; but not many, as I feel assured. One pair bred in that year between Dalwhinnie and Drumouchter Lodge, and another pair below Dalwhinnie and near the junction of the Truim with a tributary burn, well known to me for many years before and since; and these birds have been often seen at the same place from the windows of the passing train. *But for many years there was no increase of numbers here.* I am particular in tracing out these chronological facts, as I cannot think but that they are of interest if there is anything in chronology at all! I had known Dalwhinnie and upper Spey around Laggan for many years prior to 1870—some ten at least—and I feel perfectly certain that there were no Greenshanks there when I stayed there for weeks at a time at Gaskbeg Farm near Laggan Bridge, but there were numbers of Redshanks all over the meadows of the embanked sides of Spey, and they were to be seen everywhere as far up as Dalwhinnie. ("Men were young then," yet I maintain my statement.)

In 1873 Feilden and I took young of the Greenshank close to Drumouchter, and saw a second pair where I have already indicated. I feel very sure these were the only pairs there then, and for many years afterwards.

By 1878 or 1879 the Greenshank was first known to Col. Drummond Hay to have nested on the Moor of Rannoch—not, he told me, prior to that time—but see later. In 1878 one of the eggs of a clutch taken on the Moor of Rannoch was shown to him unblown by Mr. Carrington. Now in 1903 they are quite common at a good many localities known to us. The nest and eggs of this bird are represented in the Museum at Perth.

The above notes, if very full in detail, are so because I think the continuous history of the spread of this species ought to be given, in continuance of our notes in former volumes of this series; and readers who are interested in such movements may read back, and then form their own opinions as to the reasons why.

As already indicated, the Greenshank is got on the coast, though not in large numbers nor in big flocks. Montrose Basin appears as one of its haunts—one is entered under date of "September 1884." This, and others got along the coast at likely places, may have been bred in this country, or they may have come from abroad; I do not pretend to decide any such question now. (One has to exercise some care in these days, lest such opinions expressed be judged as the results of mere theory and preconceived ideas; or they may justly be considered as resulting from long-thought-out deductions from a large accumulation of facts brought together with scrupulous care and a fairly accurate geographical knowledge of the country.) Now I only act up to the above expressed idea when I further suggest that it is possible that the first occupation of Dalwhinnie Moor took place after that at Rannoch, and was probably influenced from that direction; though I do not mean to uphold such an opinion against any equally likely avenue of approach from, say, the east or north, or from the valley of the Spey.

Feilden and I got the eggs of the Dotterel about the 22nd June, and the young Greenshanks were taken some days earlier. I well remember this fact without referring to journals, as Feilden had to rejoin his regiment post-haste; and we travelled down in a composite luggage train and third-class carriage in the small hours of the morning after we found the Dotterel's eggs beyond Drumouchter.[1]

In Small's Registers I find that the first Greenshank he had got from Perthshire was sent to him from Blairgowrie on 30th January

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[1] *Everything* that night was joyous, *I remember* (and so does Feilden), except one little circumstance which is perhaps foreign to our present purpose or to the subject of this book.

1879 (Small's Register, 1857 to 1883. I have since got the Registers between 1893 and the present time).

Millais considers it justly a regular autumn visitor on the coast.

The earliest habitation within, or close to, the borders of the TAY area is, I think, certainly as follows. Looking back into the history of the Greenshank in TAY, or near its borders, I find that the nest and four eggs were recorded as long ago as 1853, when Mr. Peter Robertson, the head-forester in the Black Mount Deer-forest, sent two eggs to Mr. Edge, and he had to give the other two of the same clutch "to another gentleman" (vide *Ooth. Wolleyana*, part iii. p. 184, § 3586). That they had bred there previous to that date there is internal evidence to show, but for how long it would be now difficult to say. Mr. Peter Robertson appeared to have been aware of their presence, though he failed to discover their nest in 1852, as in a letter to Mr. Edge he says: "It beats me to find any of the Greenshanks' nests." Again in 1854 he was unsuccessful, and also in 1855, but he got the eggs again in 1856 (*op. cit.*, p. 139, § 3619), when a clutch of four was got on the 28th May; and, writing to Mr. Edge (or Mr. Wolley?), he relates that these were "taken in the forest at a place called Leitbeg, near a little loch on the moors."[1]

Again, in my own egg-book, of the year 1867, I find the entry as follows: "P. 23, *e.*—Two eggs of four—from the collection of the late Dr. Dewar, Glen Orchy, Black Mount Deer-forest, Argyll. Nest of four, two of which were sent to the late Mr. John Wolley. Taken, and the bird shot by Dr. Dewar himself, May 16, 1856." Now these may have been erroneously dated, and belong to the same clutch as that mentioned above in *Ooth. Woll.*; but the discrepancy would almost seem to be too great both as regards dates and locality.[2]

Otherwise, *i.e.* if they belong to a different lot, then there is no trace of them in Mr. Wolley's collections, now with Professor Newton at Cambridge, nor as having been obtained in Glen Orchy; at least there is no entry in Wolley's egg-book, nor in his registers nor catalogues. These contain no entries of Greenshanks from Blackmount in 1856 (A. N. *in lit.*, 16th August 1905). And Professor

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[1] That is, the moors of Rannoch and the forest. I have not been able to locate this place.

[2] As regards the latter, however, subject to further inquiry. These eggs are entered as received by me 16th August 1867, and to have passed afterwards, and in the same year, to the late Mr. Robert Gray, I having obtained, by this time, eggs of my own taking, in another part of Scotland.

Newton writes to me at the same time: "And if there had been any, I think I should find trace of it."

Now Glen Orchy drains into Loch Awe, and thence to the west, and therefore lies to the west of the TAY divide, or TAY boundary. I mention this matter here merely as a sidelight, still of some interest, because no person now living, as I have been careful to ascertain with the assistance of my friend Mr. Charles H. Alston, has any recollection of having seen Greenshanks anywhere within the confines of that glen. Mr. Alston himself knows the whole glen well, and he has never seen one in it; and I have also fished the Orchy river between Dalmally and Inveroran, and often passed of late years along the upper waters of the Tulla river, and have never seen one. But on the other side of the watershed the Greenshank has been *known to breed* upon the Moor of Rannoch, within the drainage area of TAY. Thus for many years this appears to have constituted the southern limit of the breeding range of the species in Scotland, at least I have never heard of any nest being found anywhere further to the south. This fact is of interest in itself. And the other fact seems to favour the direction of subsequent dispersal to have taken place *towards the east*, and *not from the Spey side*, though that must for the present, I think, remain somewhat uncertain (see the earlier remarks above).[1] But there is this in favour of the west to east route, viz. that the general trend of the dispersal certainly appears to have been from, and to, these directions further north. Whether the changes in the massing of their breeding haunts—say, in the north-west of the country since I can remember—and the slight changes that have taken place on the east side in Sutherland and Caithness, as I have indicated is the case in my last volume, are due to any affections of climate or from other causes, I will not go into here, lest I trouble my readers with too much repetition; except to remark that it seems a little curious that, while movements in southerly directions have undoubtedly taken place from towards its north-west limits of breeding range in Scotland, so *little movement has been detected at the limits of its southern breeding range during so many years.* I await further inquiry in this direction, which may possibly throw some light, *i.e.* if such be forthcoming, upon what strikes me as an interesting phenomenon. I am not, for instance, aware of any Greenshanks having bred anywhere further south—in TAY or in FORTH—*as yet*.

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[1] "John Sansterre passed this way. That is nothing to me, as there is no evidence that he passed this way again"—but he may do so again! (Carlyle).

**Limosa lapponica** (*L.*). **Bar-tailed Godwit.**

Common autumn visitant; and some remain all winter and late into spring. Also return spring migrant.

Numbers frequent the oozes at the mouths of the rivers Eden and Tay, and appear in full summer dress by June and July. Mr. W. Evans relates that he saw from 200 to 250 as late as the end of July 1885, at Edenmouth, mostly in summer plumage, along with Sanderlings and Grey Plovers.

This Wader does not, however, seem to be so abundant at the Montrose Basin, or "Back Sands" of Montrose (1904).

Millais says that some remain all summer, and adds: "I have shot them at all seasons."

**Limosa belgica** (*Gmel.*). **Black-tailed Godwit.**

Rare autumn visitant.

Col. Drummond Hay records two of this species shot on the Back Sands of Montrose in September 1887, which are now in the Montrose Museum. This was communicated to him by Dr. Howden, Sunnyside, Montrose (*in lit.*, December 1887); and they were duly recorded in the *Scottish Naturalist*, 1887-8, p. 350.

Mr. R. Gray records two occurrences in Forfarshire prior to the date of his writing (*Birds of the West of Scotland*, p. 305).

One, a female, was obtained at Monifieth on 5th November 1886 by Mr. J. Nelson; and another, a male, was also got by Mr. Nelson at Tayport on 14th October 1889, and both of these are now in the collection of Mr. Marshall, Stanley.

Dr. Dewar records another obtained at Montrose Basin on 19th September 1892, "only the fourth or fifth example in the district" (see his lists). It was identified by him, and duly recorded in *Annals Scot. Nat. Hist.*, 1892, p. 46.

Yet another was obtained at Tayport, 3rd September 1892, *auct.* Mr. W. Berry (*op. cit.*, p. 168 ?).

Millais has the following note: "Whilst snipe-shooting at Errol in August 1885, I chased a Black-tailed Godwit, and hit it hard. Eventually the bird flew into a reed-bed, where I lost it, as I had a very poor dog with me. This is only the second I have seen in Scotland."

(I certainly, so far as memory is to be trusted, saw two or three on one occasion on the Stirlingshire shore (FORTH), but I do not find that I made note of the occasion at the time, now many years ago. I was in the habit of recording at that time only the birds *actually procured* during my visits to the tidal parts of FORTH. Also, so far as I can recollect, one of these birds was frequenting the salt-marsh, and the other two when disturbed rose off the mud-flat and flew up and joined the other single bird.)

**Numenius phæopus** (*L.*). **Whimbrel.**

Regular passing migrant only. But only occasional on the coast of Forfar. Passes both in spring and autumn.

Though Don included it (judging from the context) as "breeding on the mountains along with Curlews," there is no existing later evidence of that fact (1813).[1]

Mr. Milne only quotes the *Black Book of Kincardineshire* as his authority for his statement that it is "a visitor to the coast." But in the *Black Book* itself it is only mentioned by name under the heading "Ornithology of the Coast" (*loc. cit.*, p. 116); and this is, after all, probably founded upon Don's statement as above given (1843).

There is one, however, now in the Museum at Montrose, which was got on the Back Sands there (*auct.* Dr. Howden, September 1887, and recorded *Scot. Nat.*, 1887, p. 350).

In 1860 Mr. Small received one from near Perth on the 1st August 1860; and Mr. W. Evans saw some there on the same date in 1885. This appears to be their usual time of arrival on our coasts in autumn, and these are usually mainly composed of young birds of the year.

Millais simply speaks of it as "common on migration," *i.e.* about Tay estuary.

Also see under next species on page 331, *infra*.

**Numenius arquata** (*L.*). **Curlew.**

Common. Resident. Breeds.

It is interesting to find, in the "Agricultural Survey of Kincardineshire," the statement that "the Curlew, so frequent in Lothian, has not found its way here," whatever the true value of the remark may be. There is, however, also a curious absence of notices of the

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[1] It is quite evident that Don made some misidentifications—or otherwise made errors as regards synonyms. Thus we find the statement that *Columba œnas* frequenting the rocks by the seaside, but no mention is made of the Rock Dove. What could *Parus biarmicus* be?—*i.e. P. biarmicus* of Don? But in most things Don is reliable. Exceptions are the above, and as follows—*Picus medius*, *Picus minor*, *Loxia enucleator* (and calling the latter a Crossbill), *Passer montanus* ("in the mountains of Angus"), and possibly a few others. But even in A.D. 1905 we find a similar confusion between the Rock Dove and the Stock Dove, in that the former has been lately solemnly stated to nest commonly in rabbit-holes in Fife (see under species).

Curlew in the old *Statistical Account* which relate to Perth, Forfar, or Kincardine; but Don includes it as "breeding in the mountains," and includes Whimbrels as doing so also, though without remarks (as indeed he often does), rendering it difficult to put a value upon his observations in many cases. We also find the same repeated in the *Black Book*, but this again is in all probability merely quoting Don, as again there are no remarks, except that the Curlew is simply entered under the heading "Ornithology of the Coast," showing, it would almost seem, some difference of appreciation of its value even in 1843![1]—*i.e.* some slight difference from Don's estimate, "breeding in the mountains."

Col. Drummond Hay spoke of it as common, and "in numbers less diminished than those of some other species which are subject to persecution"; and again: "In some districts drainage and improvements do not appear to have affected them so much as other species."

Fairly common in Rannoch (Godfrey).

Curlews arrived inland in the centre of Kincardineshire on March 10th in 1897.

I know where Curlews have greatly increased in numbers during recent years, due distinctly to burning vast stretches of heather in the west. My experience of the breeding haunts of the Curlew is that it prefers grassy hill-slopes to deep heather flats or braes, though it is well known to breed freely also in some such latter-named localities. What I mean to express is, that it *prefers* the former to the latter, and is to be found more abundantly in the former kind of ground. And where short heather moors[2] occur interspersed with lowland ground and blocks of plantations, it is also often common—as, for instance, on the Monteathmont Moor, as indicated by the Rev. Mr. M'Connochie.

In 1905, in the month of May, I found the Curlew common in the south of the area around Crieff and up Glen Artney, and also upon the long grassy foothills which roll up from the north shore of Loch Tay. Similarly Curlews are common along the lower levels of the Allan Water and the east-flowing tributaries of the Earn, and upon the grassy northern slopes of the Ochils and the Sidlaws. Perhaps nowhere at the present day are Curlews so common as among the central hills of Stirlingshire (FORTH); but I can well remember that they were quite rare there, and, in a whole day's tramp, not more than three or four nests could be found. Where one nest was, now I believe at least *ten* could be found. On my own moor above Denny, I used to know of perhaps two nests at most in a season. Now they breed there quite abundantly. Formerly the heather was longer and older, and now it has been put into better fettle, and draining has been carried out during improvements on behalf of the Grouse. (Has this also anything to do with the shifting habits of the Golden Plover? I scarcely think the causes are all the same.)

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[1] In one of our previous volumes—ARGYLL—we pointed out the comparatively late advent of the Curlew on the west side of Scotland, by which it appears that "*Curlews first made their appearance*," about forty years previous to 1879 on the high lands to the north of Loch Awe! (*loc. cit.*, p. 184). Compare with the above by Don in the east.

[2] In distinction to *muir*, where no heather has grown, unless, mayhap, introduced. This at least is the usual acceptation in Scotland of the Scottish word "muir."

In autumn the migration of the Curlew takes place across Scotland from east to west, *i.e.* up the valleys of the eastern slopes, pursuing a westerly course. I have long known this in Central Scotland districts, where I live; and Mr. William Evans has also found them pursuing a similar course—or direction—at the head of Loch Tay in the autumn of 1905; and the same directions are followed by many—if not by all—of those birds which breed throughout the eastern districts.

I may mention here also that I have observed a return track of a certain proportion of Whimbrels (*N. phæopus*) across Scotland, at certain passes in spring, both here, in Central Scotland, and—as I have before related—at the upper sources of the tributaries of Spey (MORAY), *e.g.* on the river Pattaig, and at Dalwhinnie. We know of course that the great bulk of the Whimbrel spring migration passes from south to north along the line of the Outer Hebrides. The natural (perhaps?) conclusion arrived at is, that *this bulk of these birds is en route* for their well-known breeding haunts in Faroe and Iceland; but what about those which break away across Scotland to the eastward in spring? It may be—and no doubt is—premature to theorise from even such isolated data, but I think such notes are always worthy of record for future comparison, so I do not apologise for inserting Mr. Evans's notes in full here in regard to the Curlews:—

"Curlews were observed almost daily till the 24th August, coming from the east over Killin, and flying west up Glen Dochart, usually passing in twos and threes, or in parties up to half a dozen. But on the 7th, *thirty* (30) went over in two groups. The last seen was on the 24th (on the 23rd several were seen at Dalmally (ARGYLL) flying west). On 15th August several were seen flying high over Loch an Lairige, and going in the direction of Loch Tay." Mr. Evans concludes with the remark: "The above observations show that a large number of Curlews cross towards the west coast in autumn by way of Loch Tay and Glen Dochart."

*Note.*—It may prove of interest here to refer my readers to the statement made in our volume on "ARGYLL" regarding this species, and the chronological dates of its appearance as a nesting species on the moors of that area (Fauna of ARGYLL under species).

**Numenius borealis** (*J. R. Forster*). **Esquimaux Curlew.**

Rare occasional visitant.

Col. Drummond Hay marks it merely as "occasional visitor," and other writers quote the same. The original record is given in Yarrell's *British Birds*, and it was the first occurrence in Britain—6th September 1855 (2nd Supplement to 1st Edition), on the authority of W. R. Cussock Smith, at that time occupant of Durris House, Kincardineshire (*op. cit.*, p. 36). See DEE.

## Order GAVIÆ.

### Family LARIDÆ.

### Sterninæ, or Terns generally.

Col. Drummond Hay vouches for the destruction of Terns' eggs on Tents Muir, agreeing with, and quoting from, a communication to the Glasgow Nat. Hist. Society by myself (*Proc. Nat. Hist. Soc. Glasgow*, 1878-80, vol. iv. p. 189),[1] as was in evidence at that time.[2] Since then a considerable addition to their numbers has taken place due to the protection afforded to them, along with other species, upon Tents Muir, which I have already referred to, but see also at page 335.

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[1] *Ornithological Journal of the Winter of* 1878-9, *with Collected Notes regarding its effects upon Animal Life, including Remarks on the Migration of Birds in the Autumn of* 1878 *and Spring of* 1879 (*ut supra*, pp. 123-203). Kind readers, "read back."

[2] The only part of my own notes to the Glasgow Society which I need reproduce here apply quite as well to-day as they did twenty-five years ago. Fortunately, however, there has been less necessity for care of "*local authority*" (?) to interfere, as the duty has been taken over by more able hands. Col. Drummond Hay, quoting my notes, says: "Commenting on the above-described destruction of eggs, Mr. Harvie-Brown adds: 'Have we not a Society of Field Naturalists in Dundee? I think so. And is it not a part of their duty to try and prevent this destruction?'" Col. Drummond Hay then says (footnote): "Tents Muir belongs to three proprietors who, I am sure, would be willing to give every assistance were the matter taken up firmly by the Dundee Natural History Society." I am not aware that the Dundee Society ever did anything, but I would be very well pleased to learn if they have; because such appears to me to constitute one of the first principles on which such local societies should be founded; and one of the principal duties local societies should perform is the protection of our rarer species.

**Sterna macrura,** *Naum.* **Arctic Tern.**

Uncommon and local on this coast, A.D. 1904.

Col. Drummond Hay, who believed at one time in the Arctic Tern being the Common Tern of this coast, when replying to certain inquiries that I made as to this, wrote to me under date of March 22, 1886: "I have altered my opinion about Arctic Terns and Common Terns, which latter I now believe to be the common species found breeding. The Arctic Tern I never shot (*i.e.* on Tents Muir), and my information regarding it entirely depends upon Mr. P. Henderson. Sometimes I have been at Kinshaldy since 1881, and have paid particular attention to the Terns; and I cannot say positively that amongst the lots I saw there, there was a single Arctic Tern. All I have ever shot were Common Terns."

Mr. Milne quoted Col. Drummond Hay, speaking of the Common Tern, "less abundant than the Arctic"—a statement I doubted at the time. This, as I found later, ought to have been "less maritime than the Arctic."

Such is still its value on this coast; but Mr. W. Evans identified a colony of Arctic Terns on the coast of Tents Muir, consisting of about twelve pairs in 1885. He snared a bird on its nest, and identified the clutch of eggs. But Mr. Evans informed me that he had known of this colony for a period of some twenty or more years.

Thus, while the Arctic is the commoner species on the west coast and islands, seldom penetrating to inland localities, the Common Tern is the predominant species on the sandhills of the east coast, and is known to nest at a good many inland places, such as on the gravelly reaches of Tay and Tummel, and of the larger rivers.

I have no undoubted evidence of the Arctic Tern nesting at any inland localities frequented by Terns anywhere in Scotland.

**Sterna fluviatilis,** *Naum.* **Common Tern.**

As we have just seen, this is the commonest species upon the east coast, and within our area. It is "really less maritime than the Arctic," and so finds many more inland localities suited to its habits. But it is a "pushful" bird, and appears to be the "coming race" even in the west, if our chronological statistics show anything. (See also under last-mentioned species. The treatment of these two species becomes so intimately connected, that it is almost impossible to speak of the one without mentioning the other.)

The Common Terns penetrate far up the larger streams, and occupy nesting sites among the river-channel, gravel, and sand, or have their nests on the grass patches which are there found interspersed. Such, for instance, is the case on islands of the Tay near Logierait, and up the Tummel; but rarely are these birds found in large colonies, except upon the sandhills and swarded patches amongst the suitable situations on the coast.

Tents Muir and the sands of Barrie are haunts; and there is an old-established colony on the Forfarshire shore. It is interesting to find that there is also a long-established colony of the Arctic Tern upon the Tents Muir coast or sandhills (*auct.* Mr. W. Evans, *supra*), which however does not appear to have increased its numbers or area on the east coast.

**Sterna dougalli**, *Mont.* **Roseate Tern.**

Rare occasional visitant.

Mr. J. G. Millais has obtained it at the mouth, or on the tidal part of Tay (*Proc. Perth. Soc. of Nat. Sciences*, vol. i. p. 182); but, so far as I am aware, it has not been elsewhere recorded from any part of our area.

Writing to me, in his list supplied to me for purposes of this volume, Millais says: "It was suggested to me some years ago that there were Roseate Terns amongst the large colony which breeds along the coast from the ice-house on Tents Muir as far as the Eden mouth, but after two days' careful examination I failed to detect any members of this species amongst the common species. (The common species here is, as I have shown, the Common Tern.)

**Sterna minuta**, *L.* **Little Tern.**

Local. Common and increasing as a breeding species.

The present interesting small Tern confines its breeding operations to the coast-lines here and there, and is almost purely of such maritime habit.

Both this little bird and the Common Tern have been protected by the proprietor of Earlshall, Mr. Mackenzie, or were so in 1894-5. In the fifties of last century Little Terns were abundant at the same locality as is at present inhabited, or otherwise, at a locality close to it, viz. on the Tents Muir shore. In those days my friend Col. H. W. Feilden had no difficulty in finding from fifteen to twenty nests in one day. These nests were placed close to shingle along the base of the sand-dunes.

Such also was their nesting place as remembered by myself, but by that time—some twenty-five years later—their numbers were reduced to a miserable remnant of some five or six pairs. A slight change in the configuration of the coast has taken place since then, and a ridge of shells has been formed parallel with the shore-line a little to the north of Edenmouth.

This lamentable decrease took place since the "small boys"—and men too, but principally the former—developed the wholesale robbery of their and all other birds' nests to be found on the Tents Muir shores and sandhills. They came over in boats from Dundee, and worked their evil will unchecked, or almost so, because with such access and opportunities it became a difficult matter for keepers or watchers to prevent these raids. However, since the Bird Preservation Acts were taken up, and came to be enforced by the County Council of Fife, aided by still stricter charges being given to gamekeepers and watchers to prevent these raids, and this within a well-defined area drawn up and advocated by Mr. Berry, of Tayfield, and accepted by the County Council, there has been a great and charming increase of the "wild things" of Tents Muir, including the present species. Besides the main colony, there are even indications of an increase beyond, and further to the north (and nearer to Dundee), but as yet only to the extent of a few isolated pairs, which, we may hope, represent the *nuclei* of future colonies of this interesting and harmless little bird. As yet the increase has been slow, but if protection be continued, we may expect it to increase and gain in force before many years have passed.[1]

In 1885 Mr. W. Evans found about twelve pairs. In 1880 I found fewer at the old station near the salmon-nets belonging to Mr. Speedie.

Mr. Evans describes the place as follows: "From near the Eden mouth a broad belt of cast-up and worn shells stretches away northward, parallel with the coast-line, or nearly so. White and yellow are the pervading colours, etc.; and the bank is composed of *Mya arenaria*, *Cyprina islandica*, *Cardium edule*, etc. On this bank the Little Terns breed."

An increase has taken place within the last ten years or so. In 1886-7-8 some twenty pairs were seen in the main colony, and by June 1904 their numbers had increased to some thirty or more pairs, estimated to be nesting at the time of Mr. Evans's last visit.

And by 1905 I was pleased to learn that although their eggs are still taken wholesale by at least one individual in Dundee, the colony upon that side of Tay has increased to about the same number as that on the near side of the Tay estuary.

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[1] But since the above was printed, I regret to have to record that it is only upon the northern third of Tents Muir shore that any real protection is accorded them; and almost as great persecution is being continued in the summer of 1906 as before the specially protected area of Tents Muir was defined (see map).

### **Sterna cantiaca**, *Gmel.* **Sandwich Tern.**

Fairly regular passing migrant in spring and autumn (?).

Col. Drummond Hay told us a few pairs visited the tidal Tay every summer. Though he had never found the nest, he expressed himself as having "no doubt that they breed with us, having noticed them hovering over the sands of Tents Muir along with Common, Arctic (?), and Lesser Terns." But we have no positive evidence of its having done so.

A pair were shot at Tayport, 14th May 1887, by Mr. J. Nelson; and these, male and female, are now in the collection of Mr. Marshall, of Stanley.

The Sandwich Tern is considered as of doubtful occurrence on the Forfarshire coast by Dr. Dewar, but, nevertheless, they do occur at Broughty Ferry and sands of Barrie; and there seems to be a fair chance that they would breed there, were it not that they are disturbed by the gun-fire of artillery practice just about the time of their appearance in spring. (Would it not be possible to remedy this ?) Dr. Dewar, however, scarcely shares this opinion with me, as he considers that the nesting localities of other species of Tern are too far removed to be affected thereby. Mr. Towns mentions the "rare appearance of this bird at Montrose Basin, among other items, and also on the Johnshaven flats" (October 1901).

On August 22, 1903, Mr. W. Evans saw a flock of about twenty off Edenmouth.

So far as I am aware, the Sandwich Tern appears with considerable regularity along this part of the coasts of Fife and Forfar, but of its breeding there I know nothing definite.

### **Hydrochelidon nigra** (*L.*). **Black Tern.**

Rare occasional visitant.

Don enters it as "Common on the sands of Barrie." It is difficult to accept the statement seriously; but maybe it is worthy of repetition here. Conditions of its nesting distribution then were different, I believe, and in a chronological history such records may or may not have truth or significance.

In 1899 Mr. Nicol Simpson picked up one dead on the coast of St. Cyrus in the spring of that year (*Annals Scot. Nat. Hist.*, 1900, p. 201).

In 1904 Dr. Dewar marks it as a "rare visitor."

### **Pagophila eburnea** (*Phipps*). **Ivory Gull.**

Rare. Very occasional visitant.

Mr. J. G. Millais mentions having procured one on the tidal part of Tay (*Proc. Perth. Soc. of Nat. Sciences*, vol. i. p. 182).

### **Larus ridibundus**, *L.* **Black-headed Gull.**

Common. Resident. Breeds. Increasing in numbers.

Generally distributed throughout the whole area, where suitable localities for nesting purposes are to be found.

A large colony recently formed at the White Mire of Methven—having some years ago deserted that same spot owing to some land improvements which were carried out—has again begun to occupy it. This Gull has greatly increased about Loch Tay and elsewhere, by 1902 (D. Dewar, *in lit.*, 27th November 1902); but they cannot be really considered as abundant there yet.

It is not common about Rannoch (Godfrey, 1902). But one seen at Loch Rannoch, and one at Loch Eigheach, on 23rd April 1902 (Godfrey).

"The Gull Loch" in the Sidlaw Hills bears upon its bosom three floating islands with a large colony of these birds—needless to say, the beau-ideal locality for a colony of Black-headed Gulls.

Individuals are seen passing along the length of Glen Ogle to and fro and about Lochearnhead, and also along the Balvaig river (FORTH), and along the burn which runs to join the Edenchip water which flows into Loch Earn. But I am not aware of any prominent breeding place immediately in the neighbourhood, except on the FORTH side.

There are colonies as well in the north-east of our district, but it is almost unnecessary to enter into particulars, unless it be to draw attention to the fact that there are too many for the best balance of natural laws, and there would be little harm in having their numbers thinned down. They eat up a power of insect life that would support many other equally innocent birds! Birds seem to me to cease to be innocent when they become aggressive to weaker and equally attractive species. Superabundance recoils even upon the species itself at times; and I have undoubted proofs that at one surcharged colony of Black-headed Gulls, many died from pure starvation and lack of insect food at the time of the nesting operations in an adjoining area (FORTH). Both old and young died, and so weak and exhausted were many of the old, *i.e.* parent-birds, that they were seen to drop dead suddenly on wing. When examined, they were simply found to be emaciated skeletons!

But the present numbers of this species in central TAY can scarcely be compared with its numbers elsewhere, because it is by no means so very abundant as all that. Indeed, in some of the minor valleys and districts generally, it may almost be considered rare. Thus, as I am told by Mr. Charles Mackintosh, "Several pairs are resident on the Tay, except for a short time in June. Without doubt, these have been attracted by the number of dead salmon—victims of the dread salmon-disease." Personally, I think it quite possible that a great deal of insect life has been generated by the exposure of dead salmon, but I cannot feel quite sure in how much that has proved beneficial to this species of Gull.

In the lower levels of Strathmore there are colonies, and perhaps the principal one in extent or numbers of individuals is that at Rossie Moor amongst some rushy tarns, some miles distant from Guthrie. But there are other lochs and marshes which appear to be equally inviting to this species, which, however, show no present signs of occupancy by them.

### Larus minutus, *Pall.* Little Gull.

Rare occasional visitant.

One occurrence is recorded by the late Mr. Allan Briggs at St. Andrews (*Annals Scot. Nat. Hist.*, 1895, p. 125).

### Arctic Gulls.

In the year, or season, of 1871-2, immense numbers of Arctic Gulls appeared upon our coasts; and these numbers were most patent in the Firth of Forth, and also at the mouth of Tay and estuary of the Eden and along the coast of north-east Fife.[1]

That these Arctic Gulls had appeared for many years previously there can be little reasonable doubt—indeed, there seems to have been plenty of evidence of the fact; but so far as our records tell us, or at least so far as such that I have had access to tell us, the winter of 1872-3 was previously unsurpassed upon our eastern seaboard.

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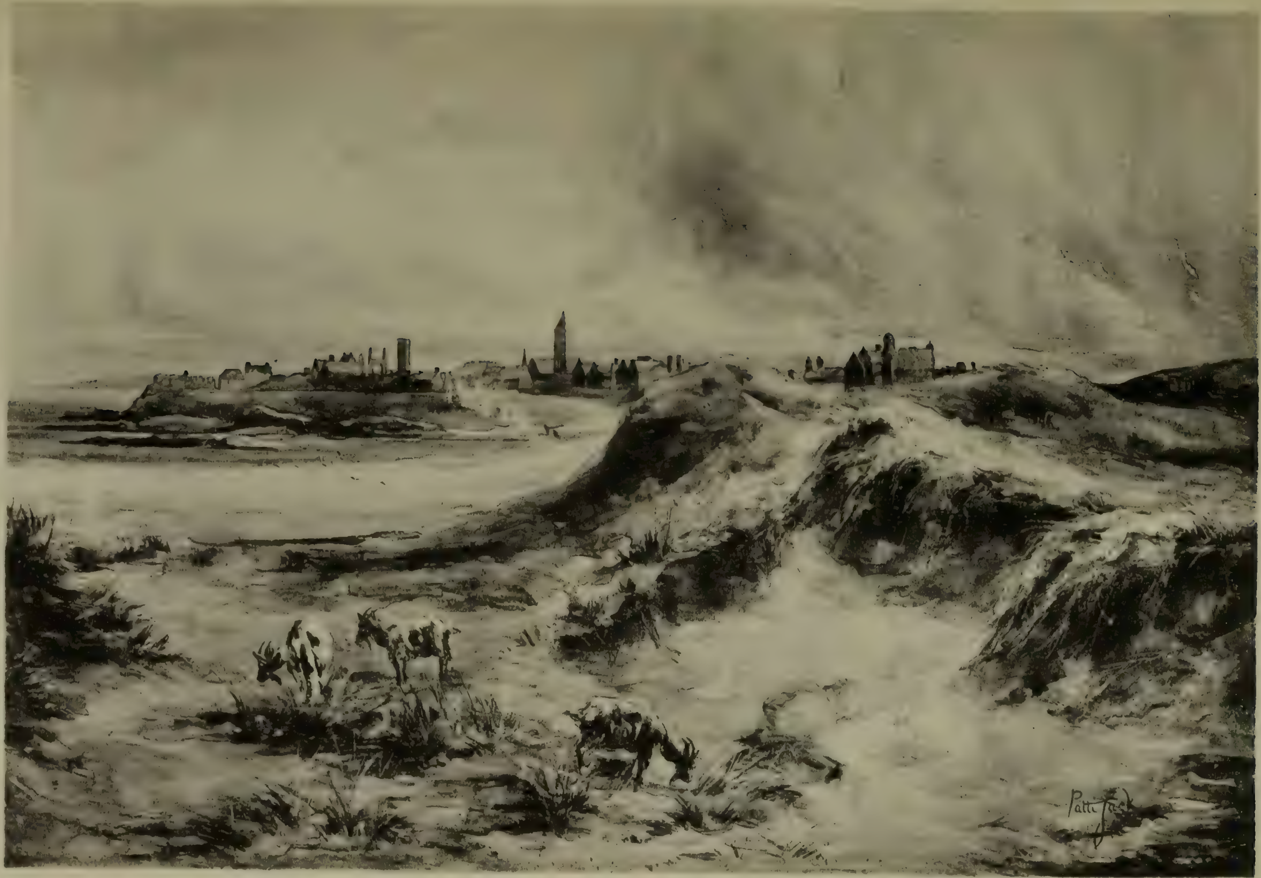
[1] See papers written at the time by the late Mr. Robert Gray and myself and others (*Proc. Glasgow Nat. Hist. Soc.*, vol. ii., 1873-6, pp. 188, 210, 213), Royal Phys. Soc., Edinburgh, and elsewhere.



ST. ANDREWS BAY AND SAND HILLS.
THE GREAT HAUNT OF ICELAND AND GLAUCOUS GULLS ON MIGRATION.

But, curiously enough, we have very much fewer records or definite accounts of this great invasion anywhere so extensive to the north of the tidal Tay. At St. Andrews I myself saw literally hundreds—principally Glaucous Gulls—that winter, streaming along the tops and under the shelter of the sandhills which fringe the golf-links, flying low over and almost touching the tops, and hugging the shelter these afforded from the gale from seaward that was blowing. Down along the rocky, cliffy shore under Gillespie Terrace also, these birds continued flying close under the edge of the cliffs over the rocky under-cliff, within half a stone-throw of the tops.

It would seem that the great bulk of these Arctic Gulls first struck our east coast about the projecting spur of Tents Muir, then followed along the coast till they reached the entrance of the Firth of Forth, and then deviated, as regards a very large proportion of their numbers, and followed that firth as far as Kincardine-on-Forth, and further up as far as Alloa. Thence southwards they bulked largely on the coast. But I give them now the pass-by, as I took good toll of their numbers, and obtained specimens in almost every stage of plumage and age. For the first time, also, Kittiwakes became winter visitors to the Firth of Forth—at least in any great numbers—accompanying these Arctic species. Of them also I obtained a very fine series of plumages, all of which could scarcely be included under the new code of nomenclature of pre-nuptial, nuptial, etc. etc., dresses ! Still, they were quite interesting. Alas ! I lost them all one big migration they made, vanishing into thin air in about an hour or two at most.[1] That winter, 1872-3, was quite a remarkable one for the enormous shoals of "Garvies" (*Clupea sprattus*) which swarmed in the narrow tideway of the upper Forth at Kincardine and higher up the estuary. These little fish were shovelled out on the adjoining fields as manure in hundreds of tons, and others sold by the hawkers at a *penny a plate.*

### **Larus glaucus**, *Fabricius.* **Glaucous Gull.**

A regular visitant to our east coasts. Abundant in some seasons.

This bird is said not to be common along the Forfarshire coast. Indeed, Dr. Dewar designates it as "a rare visitor" there. This is curious if quite correct, because I myself have seen them "swarming" —if I may use that expression to describe continuous flights following one another south along the ridges of the sandhills at St. Andrews —during the year of the great invasion in the winter of 1871-2 ; and they were well known to men there *whom I knew,* and *who knew them.*

There is a specimen of the Glaucous Gull in the Perth Museum, which was purchased from Mr. J. Henderson, which is in full summer plumage. This example is probably of Arctic origin, as it is scarcely necessary to point out that it is almost impossible that such a stage of plumage could occur on our coast. (It was, I believe, obtained at the same time that the aforesaid female Eider in full summer plumage was got—and that dated 31st December—which latter for long did duty as a female King-Eider in the same case with a fine male King-Eider.)

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[1] I allude to a fire I suffered loss by, which caused a big ascent of birds and a big hatch-off of eggs, etc. etc., in January 1897 !

The apparent scarcity of Arctic Gulls upon the coast north of Tents Muir seems to be accentuated by Millais, who records two which he saw near the mouth of the river, near the southern shore, in February 1885, and he speaks of it otherwise as a "scarce winter visitor."

### Larus leucopterus, *Faber.* Iceland Gull.

Rarer than the last, even during the great invasion in the winter of 1871-2. Though these birds were quite common in the upper reaches of the Forth, they appear to have been much scarcer at the entrance of Tay. Indeed, so far, I hold only one record of its occurrence there—where it had been obtained by Mr. J. G. Millais, *i.e.* in the tidal part of Tay (*Proc. Perth. Soc. Nat. Sciences*, vol. i. p. 182).

### Rissa tridactyla (*L.*). Kittiwake.

Abundant as a breeding species; but not to compare with the numbers upon the cliffs of our western coasts or in the Northern Isles, as has been related in our previous volumes. Resident. Breeds.

I believe that it has been only of comparatively recent years that the Kittiwake has been recognised as a winter visitor to our east coasts—at least in any great numbers. For my own part, I certainly consider that it was rarely found in midwinter before the winter of 1871-2, and in that season it literally swarmed, accompanying the great flights of true Arctic Gulls, feeding on the enormous shoals of "Garvies" (*Clupea sprattus*) which came in such phenomenal quantities to the narrows of upper Forth around Kincardine-on-Forth. Since that time, however, I consider that it has been a regular winter visitor certainly to the same reaches of the Firth of Forth, and probably also to those of the Firth of Tay. Before that, they were looked upon as of comparatively rare occurrence, so much so as to warrant record as such.

The Kittiwake is of quite exceptional occurrence at any inland localities.

*For continuation of Kittiwake see page* 341.

[A page of MS. having through an unfortunate accident been misplaced, the species coming between Iceland Gull and Kittiwake were omitted. It is now printed and paged 340 *a* and 340 *b*.]

### Larus Canus, *L.* Common Gull.

Common. Nests high up in the hills, as, for instance, at *Loch nan Eun* in Forfarshire, and on the ridge between Loch Tay and Glen Lyon, —about 2000 feet elevation.

Common in all stages of plumage along the valley of the river Tay, following the plough, and often seen in company with Rooks, and in the near vicinity of the city of Perth. Also nesting at several localities in Rannoch ; and immature birds—not nesting—frequent Loch Eigheach as early as end of April.

At hay-cutting time Mr. W. Evans found a number frequenting the portions of the fields where the hay had been cut ; and "they were busy," he tells us, "searching for the voles that were killed, and their young."

### Larus Argentatus, *Gmel.* Herring-Gull.

The most common of the larger species of Gulls which are known to frequent the river Tay as far as the tide reaches, or to about the bridges which span the river within the city boundaries. Mr. Malloch told me of one which had been kept in confinement in Perth for twenty-nine years.

### Larus fuscus, *L.* Lesser Black-Backed Gull.

Rare in adult plumage—says Col. Drummond Hay—"and generally found in the dark-brown stages of the first year in autumn and winter below Perth." Of inland haunts Col. Drummond Hay has little or nothing to communicate.

However, by 1902 these birds are stated to have become much more numerous, and as doing incalculable damage to all kinds of game. He "believes" that they nest near Killin, but I have not been able to verify the statement.

But we know that these birds travel in early spring up the courses of the streams and valleys, as elsewhere in the East of Scotland; and though I remarked their absence there in May 1905, I saw evidence of their having been there earlier, in their remains hanging up on gamekeepers' hoardings.

### Larus Marinus, *L.* Great Black-Backed Gull.

Though not to be valued as very abundant, it is well represented on all the lower reaches of the river Tay, occasionally ascending some distance above Perth.

The *Black Book of Kincardineshire* gives it as "A visitor to the Coast."

On Tents Muir Mr. Godfrey and his friend Mr. Geo. Barbour—much to their surprise—found a flock of 93, both adults and "some" immature; and they are met with also at certain times at Fife Ness.

These birds are stated to be seen occasionally far inland, as at Kinloch Rannoch (April 23, 1902), but are not so commonly found so far inland as the smaller species.

When the great flights of Arctic Gulls—Glaucous and Iceland, etc.—were seen passing down the coast at St. Andrews, I did not observe amongst these continuous streams of migrants any of this large species, though they were not uncommon amongst the Arctic *confrères* which frequented the upper waters of the adjoining Firth of Forth, at Kincardine-on-Forth, and further up the tidal river.

The only breeding place of the Kittiwake upon the whole coast is Fowlsheugh. It had been reported that these Gulls also bred upon the Red Head of Forfar—the extension of the Sidlaw ranges—but an ornithologist's eye at once realises the unsuitability of the place; and no less so, another reported site, viz. the rocks of Fife Ness. So far as I am aware, the Kittiwake has never nested on either of these places.

### [Stercorarius catarrhactes (*L.*). Common Skua.

Of extremely rare occurrence.

Indeed, only "suspected" by Col. Drummond Hay to have accompanied the flights of other Skuas which visited our coasts so abundantly in the autumn of 1879.

Millais does not mention it as occurring in his list.

Mr. W. Berwick includes it as an occasional visitor, but I fancy he is merely quoting the above; at least I have not been able to verify the fact from other sources.]

### Stercorarius pomatorhinus (*Temm.*). Pomatorhine Skua.

Rare occasional visitant; but at times appearing in considerable numbers.

The autumn of 1879 will long be remembered by ornithologists as a season of phenomenal appearance of this and other species of Skua.

Many were obtained in all stages of plumage—some of which were got at inland localities; and others have been got at inland localities, at other times, even when their numbers were not so phenomenal.

In 1895 a young female was picked up in an exhausted condition at Inchyra Grange, on 24th November (*Annals Scot. Nat. Hist.*, 1896, p. 27, *auct.* Col. Duthie).

Amongst many others got in 1879, a male and female were obtained by Mr. Fullerton, and acquired by Mr. Marshall for his collection at Stanley. These were got near Monifieth.

Under the dates of October 1879, Mr. Small has a note in his Registers (MS. copy done for me): "Some hundreds of Pomatorhine Skuas, and a number of Buffon's Skuas, were killed about this time, in the Forth below Queensferry."

In 1897 one is recorded as having been shot on the moor at Dalclathic, near Comrie, in the third week in September, and is recorded in the *Annals Scot. Nat. Hist.* for 1898, p. 46.

There is also one in the possession of Mrs. Hutton, Scott Street, West Stanley, which had been sent to Mr. P. D. Malloch in the flesh on 6th October 1902.

And there are specimens in the Perth Museum.

Millais speaks of it as a "scarce autumn visitor," and adds: "I have noticed it two or three times. In 1886 there was a small visitation, and I killed three in St. Andrews Bay."

### Stercorarius crepidatus (*Gmel.*). Richardson's Skua.

Occasional visitant.

Appeared in considerable numbers at the same time with those of the last species, and a smaller number of those of the next, in September, October, and November 1879.

It is curious to find how rare this bird appears to have been considered by P. Neil. He records as follows: "Two specimens of the Black-toed Gull—*Larus crepidatus*—were lately taken alive at the Bell Rock floating light, and sent to Mr. J. Wilson at the cottage, Edinburgh. This is accounted one of the rarest of the Gull tribe" (*Scots Magazine*, vol. lxxiii. p. 4, Jan. 1811).

The *Black Book of Kincardineshire* speaks of it as merely a "visitor to the coast," no doubt merely quoting Don in 1813.

There are specimens in the Perth Museum. One was also got in 1898 by a Mr. Dowie (?) at Auchterarder; and there is one in Mr. Marshall's collection, obtained by Mr. Fullerton—a male—on 16th October 1879.

One was got in St. Andrews Bay, October 1879, and is in the Museum.

There are several others in collections—in that of Mr. Frost at Ardvreck, Crieff; in Dr. Dewar's collection at Arbroath; in Mr. J. Milne's at Auchenblae, and Mr. D. Dewar's at Killin.

### Stercorarius parasiticus (*L.*). Buffon's Skua.

Less common than the last, but also appeared in considerable numbers, as indicated by Mr. Small's Registers as given above; but I have not many actual records to give for Tay. Small's Registers give about thirty Pomatorhine Skuas, and six Buffon's Skuas, as having been in his possession at one time.

Indeed, Col. Drummond Hay appears only to have suspected its occurrence, along with others of the genus, off the coasts of Forfar and Kincardine in October and November 1879.

There is, however, a specimen in the local collection at Perth Museum, and Millais also obtained a species on the tidal Tay.

In 1886 a fine male was shot at Strathardle, on Loch Curran—a small loch which lies very high on the ridge that divides Glendorley from Strathardle. It was reported to me by Mr. Charles Fergusson as having been killed by a friend of his, who had it stuffed. There were two together, and a snap-shot brought this one down. Mr. Fergusson wrote from the Gardens, Cally House, under date of 9th February 1888. He was at that time preparing a list of the birds, ferns, and flowers of the district, etc., for publication.[1]

Millais makes note of the species in the following terms: "An immature male now in my possession was captured alive on Perth North Inch in November 1885. In the same month two others—fine adult males—in an exhausted condition, were found on the beach at Monifieth, and are also in my collection.

Mr. W. Berwick mentions one killed in 1880 at Newport, and another at Buddon Ness, both of which are in the Perth Museum.

## Order **TUBINARES.**

### Family **PROCELLARIIDÆ.**

**Procellaria pelagica, *L.* Storm Petrel.**

Occasional, when driven inland or to the coast by gales from seaward; but a few miles out at sea are seen at almost all seasons by the fishermen who ply their avocation in the North Sea.

Captures of examples are either made alongshore, or at inland places often at long distances from the coast, and when driven in by the storm.

Col. Drummond Hay never met with it in tidal Tay, but Mr. Nelson twice saw specimens there—each time after a stiff easterly gale.

One was found in Glen Tilt by the gamekeepers about 1st November 1882.

Horn records the capture of one on Loch Tay; and one was got at Johnshaven in August 1898 (D. Towns).

While thus apparently uncommon in Tay estuary, it is often abundant over the wider waters of the sister estuary of Forth, where I have met with great numbers when out shooting between Grangemouth and Bo'ness.

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[1] *The History, Legends, and Traditions of Strathardle.*

### Procellaria leucorrhoa, *Vieill.* Fork-tailed Petrel.

Rarer than the last, as to be expected according to its known distribution, which is more upon the west coast during its breeding season.

There is one recorded as having been obtained near Strathallan Castle, Strathearn, on 22nd November 1881—an adult female.

Another was got at Blair Castle, Atholl (see *Scot. Nat.*, 1881, p. 207).

### Puffinus anglorum (*Temm.*). Manx Shearwater.

Occasional off the coast. (Perhaps regular.)

Col. Drummond Hay was no doubt correct in his identification of one he believed to be of this species which he saw off the mouth of Tay; but the possibility of course exists that it may have been one of some other, and perhaps rarer, species.

One was taken at Waukmill, some nine or ten miles inland. It was on the mill-pond when first seen, and was caught in the henhouse, where it had taken shelter, and was given to Mr. J. Milne (J. Milne, *in lit.*, 15th September 1899).

Mr. A. Nicol Simpson mentions another obtained at Johnshaven in the fall of 1899 (*Annals Scot. Nat. Hist.*, 1900, p. 201).

Mr. W. Evans reports having seen a small flock of Manx Shearwaters off St. Andrews harbour on the 25th September 1886, and asks the pertinent question, "What were they doing there?" (*in lit.*), a question as regards the genus, as well as this species, usually hard to answer (see under our information about the Great Shearwater and the Sooty Shearwater in our previous volumes); and Mr. Evans again writes me that he finds the *usual flight of Manx Shearwaters in Forth* at about midsummer 1905.

All the Petrels and Shearwaters are great vagrants, as is well known (witness the numbers of the Great Shearwater which visit our western seas), but until we can know more about their changes of plumage, and the ages at which they begin to breed, I fancy we must be content to await further developments before we can decide several points about their history.

### Puffinus major, *Faber.* Great Shearwater.

So far as I know, only the sternum of one of these birds gives any evidence of its occurrence on this coast. This solitary fragment was found on the West Sands of St. Andrews Bay on the 9th September 1881, and was acquired by the authorities for the old Museum at Perth, and is now in the present Perth Museum.

**Fulmarus glacialis** (*L.*). **Fulmar.**

Rare. Occasional occurrence.

One was obtained off the rocks at Johnshaven in the winter of 1895, and none have been seen or heard of since by Mr. D. Towns.

One was labelled "West Sands, 18th Sept. 1868," and is in the St. Andrews Museum.

*Obs.*—Referring to the allusions to the supposed increase and direction of the dispersal of this bird at its nesting place in my last volume (*Fauna of the North-West Highlands and Skye*), I desire to add a note in this place. Since I wrote that article I have had occasion to refer to an old journal, dated 1894, and as the remarks made have some bearing on the same subject, I quote them here. "When sailing homewards in the yacht *Daydream* from Faroe, Mr. Andresen—owner of three sloops and old yachts in Faroe, who desired to work his passage to this country in connection with his own business, and who had told me many things about Rockhall and his experiences as a sailor and fishing-smack owner in those seas—mentioned that, when he was a lad, 'there was an acknowledged scarcity of Fulmars, and an actual decrease.' From his own personal knowledge he spoke of Myggenaes—the westernmost island of the Faroe group—as the only, or almost the only, breeding station at one time, 'but at the present time the Fulmar is universally distributed, though not perhaps in great numbers in any one place.' This widespread but scattered colonisation is due to the nature of the cliff faces."

The same question arises as that asked by me before, viz. Have these British occupations of recent years been populated from surplusages from St. Kilda, or from a returning host falling back upon old haunts from a more general distribution and natural expansion from more northern latitudes?

Though not directly connected with TAY area, still, in continuance of previous remarks about this species in past volumes of the series, I desire to mention that a somewhat new departure in its dispersal has come to be noticed by Mr. R. Godfrey. On his return route from St. Kilda in midsummer 1905, in the *Dunara Castle*, *viâ* Barra Head and the sound between the Treshnish Isles and Tiree, no less than nine individuals of these birds were seen on the course between Barra Head and the shallow fishing bank, which has been referred to in our volume on ARGYLL AND THE ISLES as very rarely visited by single birds of the species. I hope it is not necessary to repeat that Mr. W. Donald, purser on board the *Dunara Castle* steamer, who has traversed these seas as long as I can remember—say since I first went out to the Outer Hebrides in the old *Dunvegan Castle* steamer, belonging to Messrs. Orme and Co., in 1871, and in the *Dunara Castle* ever since—has known and seen perhaps more Fulmar Petrels in his life than all the "trippers" who have visited St. Kilda in all that time, and is one who has always been in the habit of keeping his eyes about him on all his many trips across these narrow seas. I say, I *hope* it is unnecessary to repeat that he has always and repeatedly insisted that beyond one or two Fulmars in all that time seen upon the waters near this same fishing bank, he has never met with the birds inside the Outer Hebrides in winter or in summer. I do repeat it, however, knowing how short people's memories often are, and especially those who may be inclined to dismiss such observations as too trivial to have any significance, or be worthy of any further attention, or who never come to study a subject by *reading back* ! It is true that isolated observations of similar nature may not have great significance, but when a long series has been put on record, it shows little of the true spirit of philosophical research if they are repeatedly ignored.

## Order **PYGOPODES.**

### Family **ALCIDÆ.**

### Rock-Birds.

The *Black Book of Kincardineshire* gives an account of the innumerable seafowl which resort to the Fowlsheugh, about three miles south of Stonehaven, which cliffs have a frontage of nearly a mile with 200 feet elevation, and are quite perpendicular, and in some places overhanging. Formerly these cliffs were let to a tacksman, who plied his fearful calling in pursuit of the eggs and young birds, etc. Mr. Milne says he possesses a number of eggs which he procured from the said tacksman. These birds consist of the usual cliff species, including Common Gull (?), Herring Gull, Kittiwake, Razorbill, Common Guillemot, and Black Guillemot (?), and Puffins.

### Alca torda, *L.* Razorbill.

Resident. Common. Breeds.

In winter seen in numbers off the mouth of the Tay, and more especially in autumn and spring. Col. Drummond Hay notes the fact that this species and also the Common Guillemot are seen occasionally on fresh water fishing, and quotes Mr. Marshall, of Stanley, "a most observant ornithologist," as having seen several of both species for some weeks near Stanley and Stormontfield.

It has also been seen on Loch Tay (D. Dewar).

In the winter of 1871-2—more especially in January 1872—large numbers were found dead along the coasts. They were not in an emaciated, but in quite plump condition (*Proc. Glasg. Nat. Hist. Soc.*, vol. ii. p. 181).

### Uria troile (*L.*). Common Guillemot.

The Common Guillemots nest in considerable numbers at Fowlsheugh, and a very few pairs have also taken up their quarters at the Red

Head, where Dr. Dewar saw their eggs on the shelves of the rocks in 1905.

The Bridled variety has been taken below Broughty Ferry—one in the winter of 1878, which is now in the collection of the Dundee Naturalists Society.

As mentioned under the Razorbill, occasionally specimens are observed near Stanley on the river Tay above Perth city.

### Uria grylle (*L.*). Black Guillemot.

Occasionally found about the Isle of May (FORTH), and in St. Andrews Bay.

Col. Drummond Hay appeared to have been in the belief that Black Guillemots at one time bred abundantly about Muchalls in Kincardineshire. He wrote to me in 1886 : "I never got their eggs there, and indeed never looked for them, but I found the birds during all the breeding season in full summer plumage, and the young birds later on plentiful all along that coast. That was in 1834—a long time past. Possibly they are not found there now" (*in lit.*, 26th February 1886).

I am not aware of any authentic account of their breeding anywhere upon that coast even at Fowlsheugh or Muchalls, though they have been seen there by Mr. Nicol Simpson in more recent years than indicated above by Col. Drummond Hay.

The Black Guillemot is stated to have been obtained inland at Loch Tay, but I have no particulars to hand at date of August 1905, nor since.

### Mergulus alle (*L.*). Little Auk.

Driven ashore and scattered all over the interior at times after severe gales from seaward. Winter visitant under these circumstances, but it is a familiar bird to the fisher-folk who ply their calling in the North Sea.

A wonderful irruption took place in the very severe winter of 1871-2, and again in 1879, when many were driven to far inland localities. Many other irruptions took place after, but none perhaps more extraordinary than that in 1894-5, which was duly chronicled by Mr. Eagle Clarke, and mapped for the first time (*Annals Scot. Nat. Hist.* for 1895).

In the irruption or invasion in 1879 examples were got as far inland as Buchanty Moor (*Field*, 1879, p. 167, February 15).

In the still greater invasion of 1894-5, Mr. Malloch appears to have received some twenty specimens, mostly dating 11th and 12th January, but he does not specify localities, though presumably many, if not most, were from inland localities. This great flight occupied in time—*i.e.* judging from Mr. Eagle Clarke's full census—between the 22nd December 1894 and February 1895; and one was obtained (FORTH) as late as 24th March 1895.

Of earlier records I may mention one in the Museum at St. Andrews, "February 1865."

And of the latest—one brought to Dr. Dewar, Arbroath, of which he says: "The first I have seen for some years. It was taken in a turnip-field at Seaton, within a mile of the coast (*Annals Scot. Nat. Hist.*, January 1905). No exact date given beyond 'to-day,' but probably got shortly before."

Millais also includes as an uncommonly fruitful year of the bird in TAY "the early spring of 1882, and a few also in 1896. Large numbers were found dead in the Tay estuary in the former dates."

### Fratercula arctica (*L.*). Puffin.

Though more abundant than the above, yet its visits can only be looked upon as occasional at the mouth of the Tay. It is got also occasionally driven far inland by gales, as, for instance, on the North Inch of Perth, and as far as Loch Tay (D. Dewar). Breeds at Fowlsheugh. Mr. Dewar shot one out of a small party of about half a dozen on a pool of a little burn on Remony. The specimen is at present in his possession.

## Family **COLYMBIDÆ**.

### Colymbus glacialis, *L.* Great Northern Diver.

Winter visitant, remaining long into the spring, and even seen in full summer plumage well into the summer; but there is no certainty that it has ever bred in this country, notwithstanding all that has been said to the contrary.

Col. Drummond Hay, however, relates that two, male and female, were caught in nets set for pike in Loch Ordie, and he tells us it has also been known "to frequent Loch Oisinneach More, and other places," and he adds—"they are also seen to frequent salt water in full summer plumage." As regards their frequenting the lochs named, unless Col. Drummond Hay speaks from his own observation, and not upon the authority of others, I think it is wiser to reject such accounts as exceedingly doubtful.

The *Black Book of Kincardineshire* has it, "a winter visitor to the coast."

A male shot in Monifieth Bay is in the collection of Mr. Marshall, of Stanley, which was procured by Mr. Nelson on the 13th May 1882.

As long ago as when Yarrell wrote his first edition, birds have been recorded "in full breeding plumage" as late as midsummer, and history has repeated itself now so often that we must always carefully consider every future record before we can admit it actually as a nesting species.

There are two—male and female—in the St. Andrews Museum which bear the legend, "St. Andrews Bay: Dr. Adamson, 1837."

### Colymbus arcticus, *L.* Black-throated Diver.

Not uncommon. Breeding here and there in the fresh-water lochs of the interior. Inclined to spread in a southerly direction, but rather subjected to persecution.

I used to know of a pair nesting not far from Pitlochry. This was about the year 1871, but I have good reason to believe that it has not bred there again since. But shortly after I knew of their breeding a fine male was shot there, and I believe that gave the deathblow to any further attempt of the remaining bird to induce a partner to join it. Also there was one shot at a small loch near Taymouth, which is now in the collection at the Castle (Mr. P. D. Malloch, *in lit.*, January 1879). It used to nest at a little loch near Dunkeld, but I doubt there being any there now, as both of the original pair were shot, and I saw them in Mr. Anderson's (fishing-tackle maker) shop window in Edinburgh. The late Rev. H. A. Macpherson informed me of the only remaining pair in the Pitlochry district having been shot, and these are preserved in the collection of Mr. Macinroy, of Lude; but, so far as he knew, they had not nested there. All these accounts most probably refer to the same locality, or at most two localities.

The pair now in the Perth Museum were shot and their eggs taken (for the Museum) by an ex-keeper named Macintyre in the Rannoch district, of which part of the county he is or was a native. (List from Mr. Rodger.)

Millais considers the Black-throated Diver "a rare visitor to the Tay estuary."

### Colymbus septentrionalis, *L.* Red-throated Diver.

Nowhere very common. No definite knowledge in my possession of its breeding. I have some accounts of its doing so, but do not care to accept these fully.

A male was secured for Mr. Marshall's collection at Coal Hill, estuary of Tay, by Mr. John Marshall on 2nd March 1875; and the same gentleman succeeded in shooting another the following year—a female—on the 28th March at the same place.

LOCH RESCOBIE.

## Family **PODICIPEDIDÆ.**

### Podicipes cristatus (*L.*). Great Crested Grebe.

Formerly often spoken of as a winter visitor when Yarrell wrote in his first edition: and Macgillivray somewhat earlier mentioned it as "more numerous in Scotland in winter than in summer," but nothing definite was said as to its breeding in the country.

A good many years previous to 1888, as recorded by Col. Drummond Hay, he himself saw a pair of Great Crested Grebes in full summer plumage, which were shot at Loch Ordie; but, so far as I am aware, there were no earlier records of its actual occurrences in the county. Others, however, were given as having been shot at seaward localities such as Broughty Ferry and St. Andrews Bay. On 1st June 1891 a male in the second year's plumage was shot on the Tay opposite Kinfauns by Roger Davidson, Kinfauns Manse. The only one Col. Drummond Hay could report on the Tay was shot opposite Errol by a punt-shooter in December 1885, and one other in immature plumage—also a male. A fine female in full plumage was shot on the Loch of Forfar in the autumn of 1887 by Sheriff Robertson, of Burnside.

In 1896 Mr. Valentine Knight, lately taxidermist in Edinburgh, received a fine specimen in full breeding plumage. This I was informed of, and I was able to ascertain that it had passed through the hands of Mr. Anderson—of Messrs. R. Anderson and Sons, Edinburgh—and had been forwarded from Dunkeld.

Selby relates that "the Great Crested Grebe breeds on a few of the northern Scottish lochs," but unfortunately he gives no indication whatever of the county or locality otherwise.

In 1900 Mr. James Davidson found these birds breeding on Loch Fithie, and saw one bird on Loch Rescobie (Forfarshire). Mr. Davidson had the shootings at that time of Dunnichen, and had plenty of opportunities of watching the birds with a glass. Mr. Davidson is an accomplished ornithologist (*in lit.*, July 2, 1900).

Now I myself saw a single male, in perfect plumage apparently, swimming close to a patch of rushes upon the Loch of Rescobie when I was passing in the train, in the month of June, about the year 1887, but I have hunted in vain for the exact reference, and cannot find it in Notes or Journals. Certainly it was previous to 1888. For several years after I always kept a look-out for them again when passing, but it was not until the year 1896 that once more I saw two birds evidently paired at the selfsame place, which is within pistol-shot of the railway, and on the north side of the line. If, as I strongly suspect, or indeed believe, they were breeding there on the first occasion when I saw them, then I fancy that was the earliest, or among the earliest, advents of the species at breeding quarters in Scotland.

But even so late as 1892 the Great Crested Grebe appears to have been considered as only of rare occurrence on the Forfarshire coast, and was spoken of as such by Mr. W. A. Brown, who records a young male about six miles below Dundee (*Annals Scot. Nat. Hist.*, vol. i. p. 14, 1892).

By 1894 it was recorded as nesting in Fife (?FORTH) (*Annals Scot. Nat. Hist.*, by Mr. Allan Briggs, 1894, p. 18).

By 1902 my friend Mr. Corstorphine, whose residence is upon the banks of Loch Lindores, told me *viva voce*, June 1902, that no fewer than seven pairs of these birds nested there that year; but of all the broods hatched off only three young escaped from the savage attacks of the pike, of which vermin that loch is full. Again, in 1904, Mr. Corstorphine told me (*in lit.*), in reply to my questions: "Yes; the Great Crested Grebes still breed at Loch Lindores, and are increasing in numbers yearly." He again speaks of seven pairs on the loch, and another pair on a small weedy loch west of that, called the Black Loch. At the same time Mr. Corstorphine kindly sent me several nice photographs of Loch Lindores, and asked me to visit him if I could manage it in the summer of 1905.

There are many other localities now where these handsome birds nest regularly, and indeed they have become so common as scarcely to require parochial relief any longer, and I think might almost be struck off the paupers' roll.

Amongst other nesting places may be mentioned Drummond Castle Loch.

I visited Loch Lindores in May 1905, and whilst Mr. Norrie was engaged in taking views of the loch and island and the reed-beds, I counted four pairs swimming on the surface, besides other water-fowl (see also introductory chapters). Later, I was indebted to Mr. Corstorphine for the information that seven pairs were nesting there again in 1906 (*in lit.*).

I visited Loch Rescobie again in 1905, and I saw the birds at the same place, and Mr. Norrie took the photograph which is reproduced on page 350, *ante.*

Mr. Chas. Mackintosh tells me of another new locality having been occupied in the Dunkeld district, where these birds bred for the first time in 1905, and a photograph was taken of the nest.

### Podicipes auritus (*L.*). Sclavonian Grebe.

Uncertain and occasional; so reported by Col. Drummond Hay in 1880.

Mr. Towns, late naturalist at Montrose, reported to me that one was obtained at Johnshaven during the winter of 1899-1900, and Mr. J. Milne told me of the same.

Mr. Malloch records two in his Register, and adds: "They are the only ones I have seen about this quarter" (*in lit.*, April 18, 1870). One of these was shot, he says, by himself, and the other by a friend —one at Buddon Ness, a male, on 3rd February 1883.

Another is in the collection of Mr. Marshall, shot on the estuary of the Tay by Mr. John Nelson, 13th February 1890.

I do not find many announcements of its occurrence, but it does not appear to be of very great rarity, if we judge of this by the specimens which occupy places in many local collections.

There are specimens in the Perth Museum, and others in Mr. Frost's collection, and indeed in most of the private collections I have inspected.

In 1862 a young male was shot on the river Tay by Mr. P. A. Dassouville, and was exhibited at a meeting of the Royal Phys. Soc. Edinburgh, on January 11 of that year.

### Podicipes nigricollis (*C. L. Brehm*). Black-necked Grebe.[1]

I have always been doubtful regarding the records of this species nesting anywhere within the area, and even was not quite reconciled to the apparently circumstantial account given by Her Grace the Duchess of Bedford of her experiences on a certain loch in Perthshire (see the *Field* as quoted in the *Strathearn Herald* of 16th May 1903). Her Grace also wrote to me in 1905, and on account of the very near view she had of the birds, which she had watched for upwards of two hours at a distance of a few yards, on the 19th April 1903, and of which there were two pairs, I give them place here. Although seen there, however, both on the above occasion and in other years by Her Grace, I cannot yet include them amongst birds actually found breeding in TAY. The exact locality I prefer not to divulge.

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[1] I use the name "Black-necked Grebe" advisedly. So much confusion both in the Latin and English synonyms of closely allied species often leads to imperfect recording.

The name "*Eared* Grebe" is apt to cause confusion with Podicipes *auritus* of Linnæus, which latter is the Sclavonian Grebe. And again, in the English names, it may likewise be confused with the "*Horned Grebe*," which is also P. *auritus*. Therefore I prefer to use "Black-necked Grebe" for P. nigricollis of C. L. Brehm, and "Sclavonian Grebe" for P. auritus of Linnæus. Further, this also provides a distinguishing name from the Red-necked Grebe or P. griseigena of Boddært.

Of other specimens which I have seen which had been obtained in Tay, all are in the duskier plumage of winter or late autumn, or in that of the young of the year. I found one of these in the nice small local collection belonging to Mr. Frost, Crieff, and two are in the Perth Museum. In both cases these had been named Sclavonian Grebes.

*Obs.*—Of the nesting of this interesting bird elsewhere in Britain (*not in Scotland*) I wish to give the following references:—O. V. Aplin, in *Zoologist*, 1904, pp. 417-20, when four pairs were seen by three ornithologists, on one sheet of water, accompanied by young. And again, O. V. Aplin, in *Zool.*, 1906, p. 315, when he himself saw five adult birds, (presumably) at the same place; but on this occasion the young had probably not yet hatched off. The fact of the young, however, not having been seen on the latter occasion seems immaterial, having consideration to the previous account (*supra*).

### Podicipes fluviatilis (*Tunstall*). Little Grebe.

Common. Rather local in distribution. Frequents deep still pools of our rivers and backwaters, and ponds and reedy lochs. Generally distributed, but not to be termed abundant anywhere.

This interesting little bird is, however, spoken of as common by Mr. J. Milne; and they are so at suitable places, no doubt, as at Drumtochty and Glensaugh, on the ponds and lochs there, and appearing at other places in the winter.

It would be an easy thing to give a quite long list of breeding places, but the bird is too common to require such attention.

# Class 3. REPTILIA.

## Order **OPHIDIA.**

### Family **VIPERIDÆ.**

**Vipera berus, *L.* Viper or Adder.**

Don (1813) spoke of Adders as becoming rare at the time he wrote, but there seems to have been no firm ground for his belief. He includes, under the name *Coluber prester*, a black variety, or "the Black Viper," as seen in Glenshee, and adds: "the only one I have seen." He also names another variety, *Anguis erix*, the Blue-bellied Snake or Adder, as occurring "on the mountains, but rare."

It is now known that the black variety is the form usually found upon the Hill of Strathfinella, where the common lighter-coloured form is so rare that Mr. J. Milne has only met with one specimen there, and informed me of the fact. He wrote me as follows: "For the first time in my life, I met with an ordinary coloured Adder, killed on Strathfinella on June 1, 1905."

These reptiles are fairly common on the hills around Fordoun, and amongst the hills and valleys generally of the north-east of our area. Mr. Milne considers the black variety "most repulsive looking," but "not so abundant as the ordinary lighter-coloured Adders." He obtained one of the former about two feet two inches in length.

Amongst other localities, Don makes mention of "West Water," "Winon Hill"—twelve miles to the north of Brechin—and Hills of Glenrigg. Dr. Dewar speaks of it as common on Glen Queich Hill (*in lit.*, April 27, 1904), but there is scarcely any necessity to give all details of its abundant distribution, as that can indeed be well described in general terms thus: Of very general occurrence on ground best adapted to its requirements, over the whole area, preferring such as affords dry and porous subsoil and loose, broken, rocky surfaces, with not too high a growth of heather; fond of sunny, dry birch and bracken slopes, facing south and south-west, though also found on quite the opposite exposures. Perhaps most abundant over the north-east districts and amongst the foot-hills of Forfarshire and Kincardineshire, but also occurs in the moister parts of the north-west and west, as, for instance, on the Moor of Rannoch; and, as I am informed by Mr. Godfrey, upon the heathery island of Loch Luydon. Their inhabiting islands upon other fresh-water lochs of Scotland is known to naturalists, as it is well assured they do so; and they have been seen swimming and voluntarily taking to water.

Adders occur, as said, all over the area in greater or less numbers, according to suitability of the conditions, which latter may primarily be held as dependent on the nature of the geology and soil; as no doubt also are the several variations in colour, which may well be also quite dependent on climatic conditions, rainfall, sunshine, dryness, or dampness, even in very local dispersal in the British Isles.

## Order **LACERTILIA.**

### Family **LACERTIDÆ.**

**Lacerta vivipara**, *Jacq.* **Common Lizard.**

Generally distributed, favouring the drier portions. Varying in numbers, however, according to the adaptability of its surroundings. Common among the gravelly hills and mounds on the Moor of Rannoch—as, for instance, round Loch Eigheach, Lochan Dubhach, Dunan; and in birch woods along the sides of Loch Rannoch—scarcer in the pine woods. Plentiful in the heather, on the drier knolls along Loch Tay side (Dewar). At Glenogle in the south-west, amongst bog-myrtle or "sweet gale" (1903-4, Godfrey), and generally distributed on suitable grounds down to the sand-dunes and débris slopes along the cliff-bases of the east coast, and the confines of TAY and FORTH.[1]

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[1] I take the opportunity here of correcting an error in Dr. Leighton's volume on *The Life-History of British Lizards* (Edinburgh, 1903), p. 188, which, it would appear from the text, is attributable to me, in notes I sent him for his work, at his request. On looking up my notes, I think it will be found that I was referring simply to the occurrence upon Ailsa Craig of the *Slow Worm* only, and not to that of the *Common Lizard*, which, certainly, I *never* found upon that island; nor was I aware that it occurred there at all. There is a gap in the context between the first sentence of that paragraph (in which I *did* refer to both species) and the remaining sentences, to which my name is appended, in which—I *think* in a separate letter or communication

## Family **SCINCIDÆ.**

### Anguis fragilis, *L.* Slow Worm or Blind Worm.

Common and very generally distributed in all suitable situations, preferring the drier ground and warmer exposures. Common in some parts of the north-east, rarer in the north after the boundary with Dee is passed ; common again westward, where we have met with it by the base of Ben Alder, and once or twice on the Moor of Rannoch. Common on south exposure of Drummond Hill (D. Dewar), Restennet Moss, Forfar (Don), etc., etc. Not uncommon, but apparently more local, or less frequently observed, in the more agricultural portions, such as the haughs of the valleys, or the Vale of Strathmore, but often found there also near the remains of moss-hags or peat-bogs. I am not aware of its distribution along the débris of the coast cliffs, nor among the sand-dunes of the east of the area—at least not from actual returns. I suspect they are not partial to sandy situations.

—I solely referred to the *Slow Worm.* The text also *thus* makes it appear that *both* species "*swarm*" *in Harris and Lewis.* Again, I only alluded to the *Slow Worm,* which does "swarm" (in my own words) in Harris and Lewis. I was, again, not aware of the occurrence of *Lacerta vivipara* at all in these parts. I think it well to make this plain now, though I did not before draw attention to the error, so far as my information went, because though an error as regards my meaning, I find that Mr. M'Naught Campbell, of the Kelvingrove Industrial Museum, relates immediately after (*loc. cit.*, p. 189) that *Lacerta vivipara* does occur near the summit of the Crag, though they are reckoned "less common than the Slow Worm." As regards Harris and Lewis, I have no further information to the present time, and I never met with *Lacerta vivipara* in the Outer Hebrides. It may prove incorrect to deny its existence there, as it seems not to be unknown in Ireland, whereas the Slow Worm is absent from the latter country, and from the outer Hebrides, anywhere south of the Sound of Harris, though swarming on the southern slopes of the hills which face the Sound on the north, *i.e.* in Harris.

# Class 4. AMPHIBIA.

## Order **BATRACHIA URODELA.**

### Family **SALAMANDRIDÆ.**

**Molga palmata** (*Laur.*). **Palmated Newt.**

Common. Generally distributed. Often met with around Auchenblae, whence I have had specimens sent for identification. Mr. D. Dewar does not consider them very common about Loch Tay side (*in lit.*, April 27, 1904), but they do occur on the north side at Fearnan (W. Evans, *Annals Scot. Nat. Hist.*, 1893, p. 118), and doubtless at other localities. Murthly is another "plotted" locality whence there are specimens in the Perth Museum. But it is scarcely necessary to define the distribution exactly. We know that they occur here and there, and probably more generally than recorded, in the north-east, west, south-west, south, and south-east, as well as at the central localities quoted above. I am not aware of it, however, in the north-west, though I would expect it certainly about Loch Eigheach on the Moor of Rannoch, and at other places which could be named.

**Molga cristata**, *Laur.* **Crested Newt.**

This species has been obtained at Blairgowrie, whence specimens were sent to the British Museum in August 1893 (G. A. Boulenger *in lit.* to W. Eagle Clarke, August 16, 1893).

I am indebted to my friend Mr. W. Eagle Clarke for this addition to the list for TAY.

## Order **BATRACHIA ANURA.**

### Family **BUFONIDÆ.**

**Bufo vulgaris**, *Laur.* **Common Toad.**

Generally distributed and abundant.

## Family **RANIDÆ.**

### **Rana temporaria,** *L.* **Common Frog.**

Universally distributed and extremely abundant. Ascends to considerable altitudes amongst the wetter hillsides.

The Gigantic Frog of Lightfoot from Arran (*Flora Scotica:* Appendix of "Caledonian Zoology," p. 47) is only spoken of as a *large form of the Common Frog*, and is described. Don speaks of having *once*—and once only—met with one about five miles east of Arbroath in June 1797. Of it he says: "It was about three times the size of *Rana temporaria*, the Common Frog"; and he adds: "I suppose it is an inhabitant of salt marshes, and rare." But Bell (*Brit. Reptiles*, 2nd ed., 1849, p. 107) at first gave it provisionally the name *R. scotica*, and figured the comparative skulls of the two; but later, upon receiving a number of specimens of *both sexes*, and *various ages*, of the Scottish Frog, from the late Mr. Wolley, then residing in Edinburgh, resiled from that *provisional name*, and admitted it *again* as merely a variety or large form of the Common Frog. Finally, Mr. G. A. Boulenger revised the literature, and likewise leaves it as Lightfoot found it. But again Prof. Philip J. White, discovering considerable numbers of this large Frog in the neighbourhood of Fordoun and Auchenblae, and mistaking it for the next species, *R. esculenta* (*Annals Scot. Nat. Hist.*, 1896, pp. 162-5), and the facts having been pointed out to him by Mr. Boulenger, himself corrects his earlier impressions; so, *once more*, the subject is threshed out (*vide op. cit.*, 1897, p. 47, "A correction.")

The localities mentioned by Professor White are given in detail in his first communication. I can add nothing further, except that the late Mr. J. Milne seemed to be aware of the Large Frogs, but also was an unbeliever in the occurrence of *R. esculenta*.

### [**Rana esculenta,** *L.* **Edible Frog.**

The remarks given above under *R. temporaria*, may, I think, be held to dismiss all actual belief in the occurrence of the present species, without going into any detailed writing of the past records, except, it may be, to record that Don vouches for having "seen a few about the lakes," but almost certainly confusing them with the large form of *R. temporaria*, and even—it is also probable—with the large *one* which he found in June 1797, "five miles east of Arbroath," and which he supposed was "an inhabitant of the salt marshes" (*supra*). The suggestion—while this confusion has long been in progress—has more than once been made, that, IF any of *R. esculenta*, L., do occur, they may have been introduced; but I think, for the present, even that may be dismissed, "at least until some one"—as Professor White says (*loc. cit.*)—"has actually discovered *R. esculenta* in Scotland."[1]]

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[1] Of its introductions, successful or otherwise, to localities in England, it may be of use to notice the references here:—Yorks., unsuccessful, 1896 (Oxley Grabham, *Zool.*, 1896, p. 146); Surrey, successful (*fide* Mr. Boulenger); and its presence at Foulmere, Cambridge, and Thetford and Scoulton, Norfolk (Harold Russell, *Zool.*, 1904, p. 352, and again at p. 390).

# APPENDIX A.

## *Statutory Rules and Orders*, 1905.

No. $\frac{540}{\text{S. 52}}$.

(Northern District.)

## WILD BIRD, SCOTLAND.

### The Wild Birds Protection (County of Perth) Order, 1905. Dated April 25, 1905.

Whereas the Wild Birds Protection (County of Perth) Order, 1902, expired on the twenty-eighth day of February 1905 :

And whereas it is expedient to renew the said Order :

Now, therefore, I, the Most Honourable John Adrian Louis, Marquis of Linlithgow, K.T., G.C.M.G., G.C.V.O., His Majesty's Secretary for Scotland, in pursuance of the powers conferred upon me by the Wild Birds Protection Acts, 1880 to 1904, and upon application by the County Council of the County of Perth, do hereby make the following Order :—

Order.

### I.—Birds.

1. The "Wild Birds Protection Act, 1880," shall apply within the County of Perth, during the currency of this Order to the following species of Wild Birds as if they had been included in the Schedule to the said Act, viz. :—

Bullfinch (*Pyrrhula europæa*).
Buzzard (*Buteo vulgaris*).
Crossbill (*Loxia curvirostra*).
Eagle, Golden (*Aquila chrysaëtus*).
Eagle, Sea (*Haliaëtus albicilla*).
Hen Harrier (*Circus cyaneus*).
Jay (*Garrulus glandarius*).
Kestrel (*Falco tinnunculus*).
Kite (*Milvus ictinus*).
Osprey (*Pandion haliaëtus*).
Peregrine Falcon (*Falco peregrinus*).
Pintail Duck (*Anas acuta*).
Quail (*Coturnix communis*).
Scoter (*Œdemia nigra*).
Titmouse, Crested (*Parus cristatus*).
Tufted Duck (*Fuligula cristata*).

2. The taking or killing of any of the following kinds of Wild Birds is

prohibited, so far as concerns the said County, throughout the whole year during the currency of this Order, viz. :—

Buzzard (*Buteo vulgaris*).
Chough (*Pyrrhocorax graculus*).
Dotterel (*Eudromias morinellus*).
Eagle, Golden (*Aquila chrysaëtus*).
Eagle, Sea (*Haliaëtus albicilla*).
Goldfinch (*Carduelis elegans*).
Great-crested Grebe (*Podicipes cristatus*).
Kestrel (*Falco tinnunculus*).
Kingfisher (*Alcedo ispida*).
Kite (*Milvus ictinus*).
Osprey (*Pandion haliaëtus*).
Owl, Barn (*Strix flammea*).
Owl, Long-eared (*Asio otus*).
Owl, Short-eared (*Asio accipitrinus*).
Owl, Tawny (*Syrnium aluco*).
Peregrine Falcon (*Falco peregrinus*).
Titmouse, Crested (*Parus cristatus*).

### II.—Eggs.

3. The taking or destroying the eggs of the following species of Wild Birds is prohibited within the said County during the currency of this Order, viz. :—

Bullfinch (*Pyrrhula europæa*).
Buzzard (*Buteo vulgaris*).
Chough (*Pyrrhocorax graculus*).
Crossbill (*Loxia curvirostra*).
Diver, Black-throated (*Colymbus arcticus*).
Diver, Red-throated (*Colymbus septentrionalis*).
Dotterel (*Eudromias morinellus*).
Eagle, Golden (*Aquila chrysaëtus*).
Eagle, Sea (*Haliaëtus albicilla*).
Eider Duck (*Somateria mollissima*).
Goldfinch (*Carduelis elegans*).
Great-crested Grebe (*Podicipes cristatus*).
Greenshank (*Totanus canescens*).
Hen Harrier (*Circus cyaneus*).
Jay (*Garrulus glandarius*).
Kestrel (*Falco tinnunculus*).
Kingfisher (*Alcedo ispida*).
Kite (*Milvus ictinus*).
Mallard (*Anas boscas*).
Nightjar (*Caprimulgus europæus*).
Osprey (*Pandion haliaëtus*).
Owl, Barn (*Strix flammea*).
Owl, Long-eared (*Asio otus*).
Owl, Short-eared (*Asio accipitrinus*).
Owl, Tawny (*Syrnium aluco*).
Peregrine Falcon (*Falco peregrinus*).
Phalarope, Red-necked (*Phalaropus hyperboreus*).
Pintail Duck (*Anas acuta*).
Pochard (*Fuligula ferina*).
Quail (*Coturnix communis*).
Scoter (*Œdemia nigra*).
Shoveller (*Spatula clypea*).
Skua, Great (*Stercorarius catarrhactes*).
Skua, Richardson's (*Stercorarius crepidatus*).
Skylark (*Alauda arvensis*).
Snipe (*Gallinago cœlestis*).
Teal (*Querquedula crecca*).
Tern, Common (*Sterna fluviatilis*).
Tern, Little (*Sterna minuta*).
Tern, Sandwich (*Sterna cantiaca*).
Titmouse, Crested (*Parus cristatus*).
Tufted Duck (*Fuligula cristata*).
Whimbrel (*Numenius phæopus*).
Wigeon (*Mareca penelope*).
Woodcock (*Scolopax rusticula*).

4. The taking or destroying the eggs of the Lapwing (*Vanellus cristatus*) is prohibited within the said County after the fifteenth day of April in each year during the currency of this Order.

5. The taking or destroying the eggs of the following Game Birds is prohibited within the said County during the currency of this Order, viz. :—

Grey Partridge (*Perdrix cinerea*).
Pheasant (*Phasianus colchichus*).
Black Grouse (*Tetrao tetrix*).
Red Grouse (*Lagopus scoticus*).

### III.—Currency of Order.

6. This Order shall remain in force until the twenty-ninth day of February 1908.

### IV.—Title.

7. This Order may be cited as "The Wild Birds Protection (County of Perth) Order, 1905."

Given under my hand and seal of office at Whitehall, this 25th day of April 1905.

(L.S.) *Linlithgow*,
His Majesty's Secretary for Scotland.

# APPENDIX B.

## Vermin.

I HAVE so much material under this heading that there might easily be sufficient to form an entire treatise for Scotland. As regards TAY I can only give a few examples, which I must put down in a condensed form, and these only from a very small portion of the Breadalbane estates.

On Remony shootings, between 1849 and 1854, Mr. Duncan Dewar accounted for 958 head of vermin of all sorts. Then there is a blank in my returns. But again, between 1868 and 1880, he answers for 10,446 head of all kinds of vermin. Peter Mackay, another keeper, who worked under old Guthrie of Capercaillie fame, did not preserve his lists, but he told Mr. Dewar that the numbers of vermin of all sorts that were killed about that time were "Extraordinary," often three Golden Eagles being brought in in one day. Before Peter Mackay was keeper, Wild Cats, Martens, Polecats, and Badgers were very numerous, but were nearly killed out by the time he went there in 1833. It took about fifteen years before they could get the better of the different kinds of vermin.

The above notes were sent to me by Mr. Dewar in 1882.

The rarer British Mammals included in these lists have been utilised by me before in my papers upon the "Rarer British Mammals." The above, whilst including these in the totals, principally consist of the following: Stoats and Weasels, Crows, "Hawks," a few Magpies, and more Jays (35 on Mornish, and 57 on Remony), Ravens (21 on Mornish, and 146 on Remony), Peregrines (38 on Mornish, and 23 on Remony). Only 1 Marten all the time; no Polecats, no Wild Cats; 7 Badgers.

"Hawks" in general are usually "lumped" in the vermin list, and such species as Buzzards, Kites, Kestrels, and indeed all others, are entered simply under the column for "Hawks." There is a column for "Eagles." As an instance of the quantities of "Hawks" killed, I give the figures of 2517 in ten years upon the Perthshire estates of the Breadalbane territory—*i.e.* so far as these have been paid for at the estates office.

Otters, usually looked upon as vermin, were, however, for a long time preserved upon the Atholl estates, as His Grace looked upon them with special favour. What the practice on the estates may be at the present time I am not aware.

### LIST OF VERMIN KILLED UPON FASKALLY ESTATE IN PERTHSHIRE.

| YEAR. | Old Foxes. | Young Foxes. | Stoats. | Weasels. | Squirrels. | Rats. | Ravens. | Hoodie Crows. | Hawks. | Jays. | Merlins. | Buzzards. | TOTAL EACH YEAR. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1898 | 3 | 5 | 12 | 42 | 60 | 75 | 4 | 12 | 24 | 22 | ... | ... | 259 |
| 1899 | 2 | 4 | 9 | 36 | 40 | 60 | 6 | 15 | 21 | 19 | 2 | 3 | 217 |
| 1900 | ... | 2 | 11 | 47 | 102 | 88 | 2 | 9 | 17 | 11 | ... | ... | 289 |
| 1901 | 4 | 3 | 9 | 33 | 70 | 106 | 5 | 16 | 9 | 15 | ... | ... | 270 |
| 1902 | 6 | 10 | 19 | 54 | 50 | 61 | 3 | 11 | 12 | 10 | ... | 2 | 238 |
| 1903 | 1 | 1 | 13 | 19 | 30 | 55 | 3 | 9 | 17 | 26 | 3 | ... | 177 |
| In 6 yrs. | 16 | 25 | 73 | 231 | 352 | 445 | 23 | 72 | 100 | 103 | 5 | 5 | 1450 |

### LIST OF VERMIN KILLED UPON CLUNIEMORE, FASKALLY ESTATE.

In 1902: Old Foxes, 5; Young Foxes, 13; Stoats, 43; Weasels, 49; Squirrels, 60; Rats, 180; Ravens, 8; Crows, 30; Peregrines, 1; Hawks, 20; Jays, 40; Jackdaws, 300; total, 749.

In 1903: Old Foxes, 2; Young Foxes, 3; Stoats, 25; Weasels, 38; Squirrels, 43; Rats, 210; Ravens, 4; Crows, 43; Peregrines, 2; Hawks, 27; Jays, 33; Jackdaws, 390; total, 820.

### LIST OF VERMIN KILLED UPON FASKALLY ESTATE IN PERTHSHIRE.

In 1903: Old Foxes, 10; Young Foxes, 12; Stoats, 20; Weasels, 15; Rats, 30; Ravens, 2; Carrion Crows, 12; Peregrines, 2; Hawks, 12; Magpies, 2; Jackdaws, 200; total, 317.

### LIST OF VERMIN KILLED UPON DRUMTOCHTY ESTATE IN KINCARDINESHIRE.

In 1903 (January to end of November): Stoats, 10; Weasels, 8; Squirrels, 108; Rats, 15; Crows, 17; Rooks, 11; Hawks, 12; Great Shrike, 1; total, 182.

(Month of December): Stoats, 13; Weasels, 3; Hawk, 1; total, 17.

### LIST OF VERMIN KILLED UPON GLENFARQUHAR ESTATE IN KINCARDINESHIRE.

In 1903: Old Foxes, 1; Young Foxes, 8; Stoats, 9; Weasels, 33; Rats, 21; Hawks, 7; Magpies, 5; total, 84.

## Otter.

Nearly as long ago as I can remember Otters have frequented the rivers Carron and Bonny, which for a considerable distance flow through my home estate. Many were trapped by an expert hand—Robert Finlayson, our old gamekeeper—or shot by him "in the gloaming" when leaving a well-known "holt." We always skinned Otters here and laid the pelts out flat, not pulling the skin off as is done in Shetland; in fact, the latter process is much more like skinning an eel then taking the pelt off a mammal.

The first living Otter I ever saw, however, was a tamed one, taken in early youthfulness and kept by one James Gleig, a *Carron moulder* to trade. Gleig[1] used to come up to Dunipace accompanied by his tame Otter, which would follow him like a dog; or sometimes if held by the end of the tail, would progress alongside its master, running upon its fore paws only. To its master it was very tame and affectionate; and he had trained it to fish in his presence for trout and eels, which it always brought out of the water to the bank close to its master, and which he took from it, always rewarding his pet, however, each time with a crust of bread or a biscuit, which seemed to be quite satisfactory and pleasing to the animal. Gleig would throw the crust into the water, and the Otter, after diving into the pool, would gracefully turn beneath the floating crust, and with exceedingly graceful and rapid motion rise to and take down the crust, just as a salmon is seen at times—where the circumstances are favourable—to take a salmon-fly with a rush.

But to other persons the Otter (which I will call *Topsy*, as I am well assured it is the same animal which I refer to later on) was shyer and never familiar, though by no means wild or in the least timid.[2]

The late Mr. Salvin, who reared and tamed many Otters, confessed that he was never able to teach one to retrieve fish. Topsy, however, did do so, in so far that she always brought them to the bank close to her master's feet. I do not certainly remember ever seeing her fetch and carry like a dog, nor carry the fish in her mouth after reaching land. Some terriers, and even spaniels and raw young retriever dogs, at times develop the practice of taking shot birds out of the water, but leaving them whenever they get to the bank, and this becomes extremely annoying to the sportsman, especially if the birds be left upon the *opposite side* of an unfordable reach of river. Gleig's Otter,

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[1] It was Gleig also who shot an Osprey at Carron Ponds, which afterwards came into my hands.

[2] I refer to this same tame Otter in vol. i. of the series (SUTHERLAND and CAITHNESS), p. 80, footnote, *q.v.*

Topsy, however, always brought her eels or trout *towards* her master, and I certainly do not remember ever seeing her land with an eel or a trout upon the opposite bank.

In 1861 this tame Otter was sold by its master in Stirling; and as I learned at the time, passed afterwards into the hands of the late Duke of Atholl, who at that time also was credited very generally as the possessor of "*a pack of tame Otters*," or, "a number of tame Otters." This current belief took very general hold, and even quite of recent years—even as late as July 1906—I have heard the belief related; and until as late as the date named I myself was under that generally accepted impression.

Desiring, however, to "mak' siccar," as well as to obtain more minute particulars, I addressed myself to Mr. Forbes, the factor at Blair Atholl, and he handed on my letter to His Grace, the present Duke, and from the latter I received the assurance that Topsy, "which the late Duke, my father, bought from one J. Graham, a lath-splitter in Stirling, in October 1861," was the only one so kept. "The Duke was told it would catch fish and bring them out to its master, but it would do nothing of the kind at Blair. Neither was it over-tame, as it bit several people severely." And, continues His Grace (*in lit.*, August 3, 1906), "I fancy it died that winter." Then His Grace goes on to say: "Sometime before that one of the keepers at Blair had an Otter for a short time," and "that is all the information to be had on the subject." His Grace also mentions incidentally, when speaking of the purchase of the animal, that its name then was Topsy, but whether this was the original possessor's name for it, or was given to it subsequently, I do not know, and I find no notes in my oldest journals which give its name.[1]

Since then I have had several young Otters here, but they were never very tame, though not to be called wild or timid. The latest I had died of distemper. It had become fairly familiar with my butler who tended it, but to others it was always shy and reserved. It was never at liberty entirely, having a large den extemporised of spars and wire-netting, and dry inner chamber with big bath under the tap in the court behind the house. At times it was very frolicsome, playing with a bone or ball hung at the end of a string, and it used to romp and play often in its bath. A second young Otter I got was put in beside it, but being of different ages they could not agree, nor would they *agree to differ*. Alas! one morning the new arrival, and younger one, was found dead from the ill-treatment of its older relation.

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[1] I find my earliest journals were commenced in 1860, and they have been continued since down to date. It was previous to the above early date that I used to see Gleig and his Otter. As shown above, it was sold first *into Stirling*, and finally to the Duke of Atholl in October 1861. My impression always had been that Gleig sold it to Messrs. Malloch, gunmakers, Stirling, and that they sold it to the Duke for the sum of £7 or guineas, or to his agents, but no doubt the account given above in the text will prove to be the more exact relation.

Otters track over considerable stretches of country. My old keeper, Finlayson—an expert trapper—and I once followed the track for two miles across country, between the Bonny water—across the Carron—and on to the Pow Burn in Torwood. This was in snow, and no doubt the Otter had gone prospecting for sea-trout or rather bull-trout (*S. eriox*), which ascend the Pow Burn in October and later. We lost the track at the bank of the Pow Burn. We had no dogs, and doubtless the animal had descended the burn to search for his prey lower down, where the burn runs deeper through the carse-lands.

We have never had any of the Otter-hound packs here, though I believe still—*i.e.* at the present day—a very sure find would result at more than one place, and sport be obtained—*i.e.* if the huntsmen and hounds don't mind "stirring up the mud a little."

**Great Grey Shrike.**

A specimen of this species is included in a return of vermin killed on Drumtochty for the year 1903. Supplied to Mr. J. Milne by the keeper, Mr. Jas. Wyllie.

I am assured by Mr. Eagle Clarke, as late as August 1906, that there is only one specimen of Pallas's Grey Shrike in the Royal Scottish Museum.

**Ruff,** ♂ immature: Meikleour, 11th September 1905.

It is not often that specimens are obtained at inland localities in this country. At least their occurrence at inland localities is not conspicuous as regards numbers or regularity.

**Widgeon.**

Since going to press with this volume I have been informed by Mr. J. Milne, Auchenblae, that Widgeons are increasing upon Loch Glensaugh near Drumtochty, Kincardineshire (1906). Also that an easterly extension—or at least an added locality for their nesting—is near Murthly on the Tay, as I am informed by Mr. J. W. Dobbie (*in lit.*, 9th May 1906). We have seen, of course, that they have long inhabited the lochs near the sources of Tummel and the Moor of Rannoch.

**Stock-Dove.**

I have just heard of the first appearance—or earliest account of the appearance—of the Stock-Dove at Guthrie from the Rev. William

M'Connochie. He writes under date of August 16, 1906: "On June 10, sitting by Lunan—the stream in front of my manse—I saw a pair of Stock-Doves in lovely plumage. They were in the willow-trees on the bank of the stream, but flew down to the field near me. It was my first conscious sight of them; but another, who seems very observant, says he has seen them with Ring-Doves in beech-trees to the east of this a few miles." This appears to bear out my views of their dispersal taking place in TAY *from the central districts towards the coast-line* (see text). And thus, even whilst these pages are passing through the printers' hands, new developments in dispersal are taking place, showing, in my humble opinion, the value of chronological observation and record, as far as it is possible to carry that out in practice. The absence to date further to the east also, appears to me to be accentuated as regards the country belonging to the TAY and STRATHMORE area, as already remarked upon in the body of the text (pp. 262-3, etc.).

### Quails at Guthrie.

Since the body of the text was printed the Quail has been heard calling by the Rev. Mr. William M'Connochie, as reported to me *in lit.* 16th August 1906 as follows: "Last evening I went to the moor here (*i.e.* August 11) through the fields. I am pretty sure I heard a pair of Quails calling to one another, one in a field of wheat, and the other in a field of potatoes." The Rev. Mr. M'Connochie, in the same letter, informs me that "two Quails were shot near Montrose (Dunninauld and Dysart) in 1879 and 1894," which are in the Museum at Montrose, and which he saw there last April. In the text it will be noticed (p. 276) that I give one as killed in August 1884; and also at p. 277 that I say I had no account of the bird—at the time I wrote—from the parish of Guthrie; so the above is deserving of a place in our chronology.

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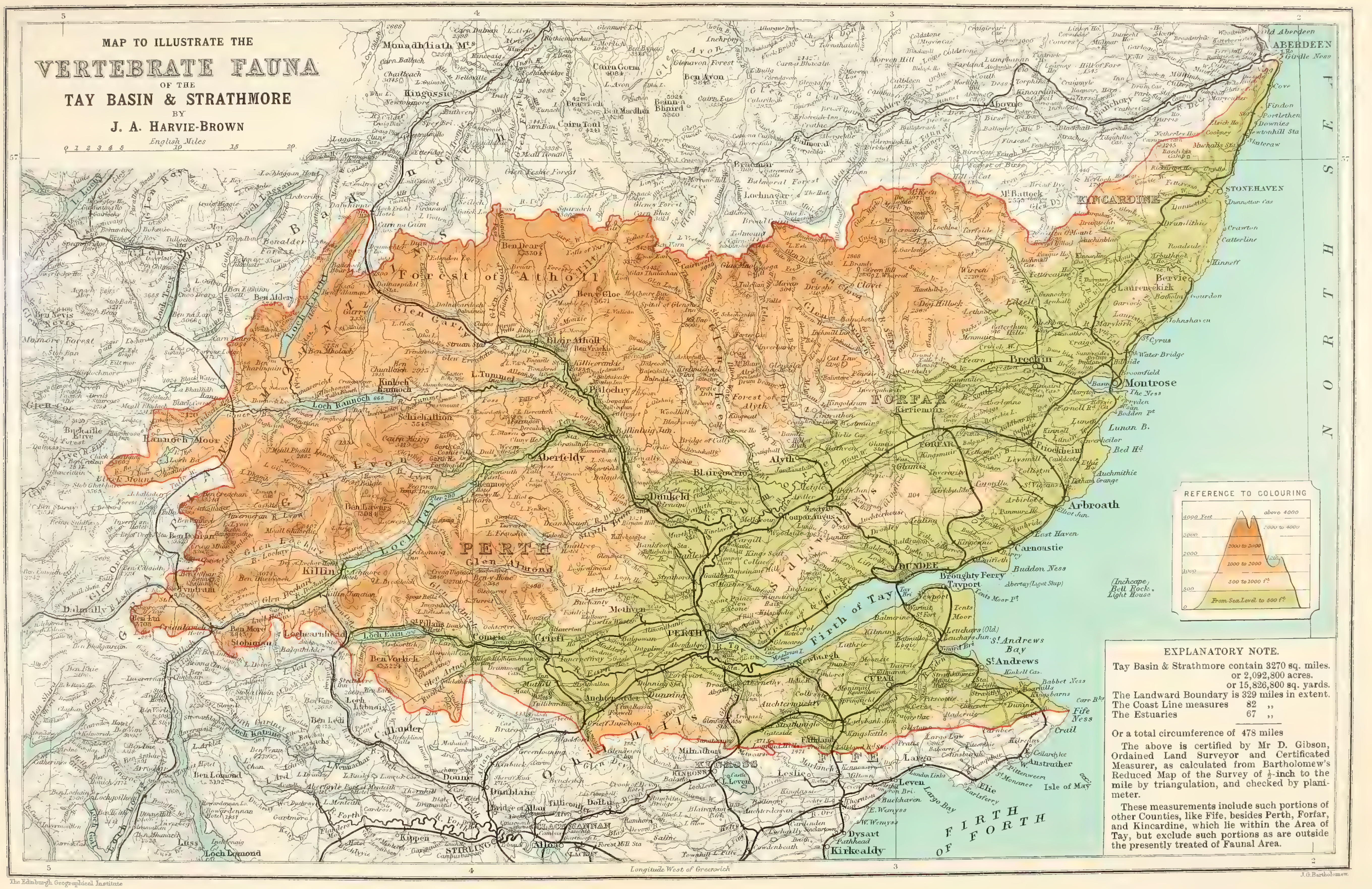
### MAP TO ILLUSTRATE THE
# VERTEBRATE FAUNA
### OF THE
# TAY BASIN & STRATHMORE
BY
**J. A. HARVIE-BROWN**


English Miles
0 1 2 3 4 5 10 15 20
5
4
3
2
57
REFERENCE TO COLOURING
4000 Feet
3000
2000
1000
500
0
above 4000
3000 to 4000
2000 to 3000
1000 to 2000
500 to 1000 ft.
From Sea Level to 500 ft.
Loch
Longitude West of Greenwich
NORTH SEA
PERTH
FORFAR
KINCARDINE
FIFE
CLACKMANNAN
KINROSS
Forest of Atholl
Firth of Tay
FIRTH OF FORTH
Aberdeen
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Dundee
Broughty Ferry
Tayport
Buddon Ness
Inchcape Bell Rock Light House
St. Andrews
St. Andrews Bay
Fife Ness
Crail
Isle of May
Largo Bay
Leven
Kirkcaldy
Dysart
Brechin
Forfar
Kirriemuir
Alyth
Blairgowrie
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Strathmore
Sidlaw Hills
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Callander
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Stirling
Alloa
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Loch Leven
Braemar
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Lochnagar 3768
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Kingussie
Ballater
Aboyne
Banchory
Dalmally
Tyndrum
Crianlarich
Lochearnhead
Loch Laggan Hotel
Spean Bridge
Monadhliath Mts.

EXPLANATORY NOTE.

Tay Basin & Strathmore contain 3270 sq. miles.
or 2,092,800 acres.
or 15,826,800 sq. yards.
The Landward Boundary is 329 miles in extent.
The Coast Line measures 82 ,,
The Estuaries 67 ,,

Or a total circumference of 478 miles

The above is certified by Mr D. Gibson, Ordained Land Surveyor and Certificated Measurer, as calculated from Bartholomew's Reduced Map of the Survey of ½-inch to the mile by triangulation, and checked by planimeter.

These measurements include such portions of other Counties, like Fife, besides Perth, Forfar, and Kincardine, which lie within the Area of Tay, but exclude such portions as are outside the presently treated of Faunal Area.

The Edinburgh Geographical Institute

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